MINISTRY OF INDUSTRY AND TRADE OF VIETNAM ------	SOCIALIST REPUBLIC OF VIETNAM Independence - Freedom - Happiness ----------
No. 07/2024/TT-BCT	*Hanoi, April 12, 2024*

CIRCULAR

METHODS FOR DETERMINING PRICES FOR ELECTRICITY GENERATION AND POWER PURCHASE AGREEMENT

Pursuant to the Law on Electricity dated December 3, 2004 and the Law on amendment to the Law on Electricity dated November 20, 2012;

Pursuant to Decree 96/2022/ND-CP dated November 29, 2022 of the Government on functions, tasks, powers, and organizational structure of the Ministry of Industry and Trade;

Pursuant to Decree No. 137/2013/ND-CP dated October 21, 2013 of the Government elaborating the Law on Electricity and the Law on amendments to the Law on Electricity;

At request of the Director of Electricity Regulatory Authority of Vietnam;

The Minister of Industry and Trade promulgates Circular on methods for determining prices for electricity generation and power purchase agreement.

Chapter I

GENERAL PROVISIONS

Article 1. Scope and regulated entities

1. This Circular prescribes methods for determining prices of electricity generation and power purchase agreement for various power plant models.

2. This Circular applies to:

a) Power plants operating in territory of the Socialist Republic of Vietnam and connected to national electricity system;

d) Other relevant organizations and individuals.

3. Provisions pertaining to methods for determining electricity generation prices under this Circular do not apply to: strategic multi-purpose hydroelectricity plants, small-scale hydroelectricity plants applying avoidable cost tariff, independent power plants invested in built - operate - transfer (BOT) model, power plants and generator groups providing auxiliary services; power plants applying electricity pricing regulations under documents issued by competent authority.

4. Provisions pertaining to sample power purchase agreement specified under Appendix 3 hereof do not apply to: strategic multi-purpose hydroelectricity plants, small-scale hydroelectricity plants applying avoidable cost tariff, independent power plants invested in built - operate - transfer (BOT) model, power plants and generator groups providing auxiliary services; power plants applying electricity pricing regulations under documents issued by competent authority.

Provisions pertaining to sample power purchase agreement under Appendix 3 hereof do not apply to solar power plants and wind power plants unless said power plants participate in competitive electricity market.

5. Power plants that lack electricity pricing regulations stipulated by the Government, Prime Minister, or Ministry of Industry and Trade shall conform to Article 9 hereof.

Article 2. Definitions

In this Circular, the terms below are construed as follows:

1. *The Seller* means an Electric utility possessing a Power plant.

2. *The Buyer* means Vietnam Electricity (or authorized representatives thereof), Northern Power Corporation, Central Power Corporation, Southern Power Corporation, Hanoi City Power Corporation, Ho Chi Minh City Power Corporation, major electricity users, other electricity buyers according to regulations of electricity market.

3. *Developer* means organization and individuals managing, using capital to invest in power plants, power lines and electrical substations to serve power plants.

4. *Connection costs* means investment and construction costs for power lines and electrical substations from distribution yards of power plants to Connection point and distributed costs relating to common power lines (if any).

5. *Specific connection costs* means costs (or allocated costs) implemented by the Developer to build power lines and electrical substations from distribution yards of a power plant or power plants to distribute load towards connection points under assignment of competent authority.

6. *Connection point* means a point agreed upon under connection agreement between the Developer and grid manager as per the law.

7. *Delivered electricity* means electricity delivered from the Seller to the Buyer under electricity sale and purchase between the Seller and the Buyer.

8. *Electric utility* means an organization or individual that, pursuant to Vietnam's domestic laws, possesses power plant or power plants.

9. *System and market operator* means the National Load Dispatch Center or other name depending on development levels of electricity market.

10. *Liquefied natural gas (LNG) storage, regasification, and distribution agreement* means an agreement between Electric utility or fuel trading entity and LNG storage investment, management entity for the purpose of storing, regasifying, distributing, and supplying gas for power plants and is signed in a manner compliant with applicable laws with competitive and transparent prices.

11. *Power purchase agreement (PPA)* means an agreement that accommodates electricity sale and purchase of each power plant.

12. *Gas sale and purchase agreement (GSPA)* means an agreement between gas seller and mine owner for the purchase and delivery of domestically produced natural gas to gas buyer which is the power plant using the gas for electricity generation.

13. *Fuel purchase agreement* means an agreement between the Electric utility and fuel trading entity for the supply of fuel for power plants, is signed in accordance with applicable laws, guarantees legitimate fuel sources and competitive, transparent prices.

14. *Fuel transport agreement* means an agreement between Electric utility or fuel trading entity for the transportation of fuel to power plants, is signed in accordance with applicable laws, and guarantees competitive, transparent prices.

15. *Base year* means the year used in total investment or total revised investment for the purpose of calculating approved electricity generation prices.

16. *New power plant* means a power plant that has not entered into initial PPA.

17. *Net heat rate* means amount of thermal energy consumed to produced one kWh of electrical energy at delivery point (BTU/kWh or kJ/kWh or kCal/kWh).

18. *Total investment* means total investment of the project determined in accordance with applicable regulations and law, fundamental design, and other contents of feasibility study of construction project.

19. *Total revised investment* means total investment revised in accordance with construction laws applicable as of the date on which electricity generation price negotiation is conducted.

20. *Settled investment* means all legitimate costs incurred in investment process to bring projects into operation. Legitimate costs mean costs within approved projects, design, estimates; construction contracts signed in accordance with the laws; including revision thereof approved in a manner compliant with the laws and by appropriate eligibility; settled investment must be contained in total approved investment (or revised) as per the law.

Chapter II

METHODS FOR DETERMINING ELECTRICITY GENERATION PRICES

Section 1. METHODS FOR DETERMINING ELECTRICITY GENERATION PRICES FOR NEW POWER PLANTS

Article 3. Rules for determining electricity generation prices

1. Electricity generation prices of power plants are developed on the basis of:

a) Legitimate, reasonable costs incurred by Developed throughout economic life of the project;

b) Internal rate of return does not exceed 12%.

2. Electricity generation prices of power plants consist of:

a) Prices of PPA: are negotiated between the Seller and the Buyer and developed in accordance with Article 4 hereof;

b) Specific connection prices (if any): are negotiated between the Seller and the Buyer and are determined in accordance with Article 8 hereof.

3. Electricity generation prices do not include VAT, water resource tax, licensing fees for water resource extraction, forest environment service fees, environment protection fees in respect of solid waste and industrial wastewater (in case of thermal power plants), other taxes, fees, and monetary collectibles according to regulations of competent authority (other than taxes, fees included in electricity generation solutions).

4. Power purchase agreement price for comparing with electricity generation price range in the base year:

a) PPA price must be within price range for electricity generation in the base year of power plants issued by Minister of Industry and Trade, in which, PPA price of power plants for comparing with price range for electricity generation in the base year shall be calculated on the basis of cost components corresponding to cost components serving calculation of price range for electricity generation;

b) In case electricity generation price range is not available in the base year of a power plant, PPA price of the power plant shall be calculated on the basis of corresponding cost components in order to compare with electricity generation price range of the latest year applied to the power plant.

Article 4. Methods for determining PPA prices in Base year of power plants

PPA prices of Base year P_C (VND/kWh) are determined using formula below:

$$P_C = P^{CD} + P^{BD}$$

1. P^{CD} (VND/kWh) means fixed prices of the Base year and is determined using formula below:

$$P^{CD} = FC + FOMC_b$$

Where:

FC: Average fixed costs determined in accordance with Article 5 hereof (VND/kWh);

$FOMC_b$: Means fixed operating and maintenance costs of Base year and is determined in accordance with Article 6 hereof (VND/kWh).

2. P^{BD} (VND/kWh) means variable costs of the Base year.

a) P^{BD} of thermal power plants is determined using formula below:

$$P^{BĐ} = VC_b^{nlc} + VC_b^{nlp} + VC_b^{k} + P_b^{VC}$$

Where:

VC_b^{nlc}: Means variable cost components depending on primary fuel costs of power plants in Base year and is determined in accordance with Clause 1 Article 7 hereof (VND/kWh);

VC_b^{nlp}: Means variable cost components depending on secondary fuel costs of power plants in Base year and is determined in accordance with Clause 2 Article 7 hereof (VND/kWh);

VC_b^{nlp}: Means variable cost components depending on other factors of power plants in Base year and is determined in accordance with Clause 3 Article 7 hereof (VND/kWh);

P_b^{VC}: Means transportation costs for primary fuel for electricity generation in the Base year and is determined in accordance with Clause 4 Article 7 hereof (VND/kWh).

b) In respect of hydroelectricity plants, solar power plants, wind power plants: P^{BD} equals 0.

3. Experimentation, test, commissioning costs of power plants: Payment of experimentation, test, commissioning costs prior to commercial operation date agreed upon by the Seller and the Buyer must not be repeated in total approved investment of the projects.

Article 5. Methods for determining average fixed costs of power plants

1. Average fixed costs of power plants (FC) are determined on the basis of financial analysis of projects according to Schedule 1 and Schedule 2 under Appendix II attached hereto. Input data serving determination of average fixed costs (FC) of power plants are determined in accordance with Clause 2 of this Article.

2. Primary input data used in determination of average fixed costs (FC) of power plants:

a) Investment: Investment determined on the basis of total investment (or total revised investment, settled investment) effective as of the date on which electricity generation price negotiation is conducted is used in calculation of electricity generation prices and includes all costs incurred by the Seller up until connection points of power plants which include: power plants; power plant infrastructures, wharfs; LNG import ports and storage (where LNG is used by power plants), other relevant costs, and costs allocated to the projects (if any);

Specific connection costs for calculation of specific prices shall conform to Article 8 hereof.

b) Economic life: Conforms to Appendix I attached hereto, unless competent authority issue documents approving economic life of projects that is different from the economic life stipulated under this Circular at which point said documents prevail (in years).

c) Average electricity generated over multiple years at delivery points (A_{GN});

A_{GN} is calculated as follows:

$$A_{GN} = A_{NM} \times (1 - t_{td}) \times (1 - k_{CS})$$

Where:

A_{NM}: Electrical production at the outlet of power plants according to fundamental design effective as of the date on which negotiation is conducted (kWh).

In case of thermal power plants, formula below shall apply:

$$A_{NM} = P_t \times T_{max}$$

Pt: Means terminal capacity of generators under approved design (kW);

T_{max}: Means number of hours operating at maximum capacity in multiple years of power plants.

t_{td}: Means percentage of self-sufficient electricity and electricity loss from step-up transformers of power plants and transmission lines to delivery points with national electrical system (if any) agreed upon by the Seller and the Buyer, is determined in accordance with approved fundamental design or technical dossiers of equipment manufacturers (if any at the time of negotiation), and does not exceed value defined under approved fundamental design (%) or conforms to documents of competent authority (if any);

k_{CS}: Means average percentage of capacity attenuation across economic life of thermal power plants (if any) agreed upon by the Seller and the Buyer, is determined in accordance with fundamental design or technical dossiers of equipment manufacturers (if any at the time of negotiation), and does not exceed value defined under Appendix I attached hereto.

In respect of power plants that lack T_{max} and/or K_{cs} under Appendix I attached hereto, these parameters shall be agreed upon by the Seller and the Buyer;

Where A_{GN} cannot be identified using the aforementioned formula, the Seller and the Buyer shall determine in accordance with fundamental design and technical design regarding delivery points effective as of the date on which negotiation is conducted. Where A_{GN} cannot be determined even via approved technical design or fundamental design, A_{GN} shall then be determined by documents of competent authority. Where A_{GN} cannot be determined even via documents of competent authority, A_{GN} shall then be agreed upon by the Seller and the Buyer.

d) Duration of depreciation provision of each group of primary fixed assets (year): Is determined by duration of depreciation provision of each group of primary fixed assets under regulations of the Ministry of Finance from time to time or documents of competent authority allowing depreciation provision different from regulations of the Ministry of Finance (if any).

dd) Percentage of equity, loan capital, and investment phasing in total investment: Is determined depending on decisions approving investment projects and actual capital mobilized for the projects at the time of negotiation, compliant with regulations promulgated by competent authority. Equity accounts for at least 15% of total investment.

e) Loan interest and loan repayment period during operating period: Depending on loan agreements, documents, texts between Developer and credit institutions, creditors.

Where total loan capital under all loan agreements or other legitimate documents between Developer and credit institutions is lower than total loan capital used in electricity price calculation, the missing portion of loan capital during operating period shall be negotiated by the Seller and the Buyer on the principles that minimum repayment period is 10 years and in a manner compliant with regulations on loan interests below:

- Interest of loans in foreign currency is determined by secured overnight financing rate (SOFR) over a term of 180 days - average of 36 consecutive months from the latest March, June, September, or December of the negotiation year published by the FED (website: www.newyorkfed.org) plus 3%/year;

- Interest of loans in VND is determined by the average maturity interest of 12-month deposits made in VND for individual customers of the first day of 60 months prior to the latest March, June, September, or December of the negotiation year published by 4 commercial banks (Vietcombank, VietinBank, BIDV, Agribank or lawful inheriting units thereof) plus 3%/year.

g) Corporate income tax rates, other tax and fees: Are determined in accordance with relevant laws.

Article 6. Methods for determining operating and maintenance costs of power plants

$FOMC_b$ (VND/kWh) is determined using the formula below:

$$FOMC_b = FOMC_b^{scl} + FOMC_b^{nc}$$

Where:

$FOMC_b^{scl}$: Means operating and maintenance costs depending on major repair costs and other costs in Base year and is determined in accordance with Clause 1 of this Article (VND/kWh);

$FOMC_b^{nc}$: Means operating and maintenance costs depending on personnel costs in Base year and is determined in accordance with Clause 2 of this Article (VND/kWh).

1. Operating and maintenance costs depending on major repair costs and other costs in Base year $FOMC_b^{scl}$(VND/kWh) are determined using the formula below:

$$FOMC_b^{scl} = \frac{TC_{scl}}{A_{GN}} \quad (đồng/kWh)$$

Where:

TC_{scl}: Is total major repair costs and other costs in Base year and determined using formula below:

$$TC_{scl} = VDT_{XD+TB} \times k_{scl} + C_{cdk}$$

Where:

VDT_{XD+TB}: Means total construction costs and equipment costs determined on the basis of total investment under Point a Clause 2 Article 5 hereof (VND);

k_{scl}: Means percentage of major repair costs and other costs (%) of power plants agreed upon by the Seller and the Buyer and does not exceed values defined under Appendix I attached hereto. Where k_{scl} under Appendix I attached hereto is not defined for power plants, k_{scl} shall be agreed upon by the Seller and the Buyer;

C_{cdk}: Means other costs relating to dredging of navigable channel and infrastructure costs agreed upon by the Seller and the Buyer (if any) (VND). Where data serving calculation of costs for dredging navigable channels and infrastructure costs in Base year are not available, the Seller and the Buyer shall negotiate and calculate the sum of these costs at the time of negotiation including inflation towards the Base year at a rate of 2,5%/year (VND);

A_{GN}: Average electricity generated over multiple years at delivery points between the Buyer and the Seller and calculated according to Clause 2 Article 5 hereof (kWh).

2. Operating and maintenance costs depending on personnel costs in Base year $FOMC_b^{nc}$ (VND/kWh) are determined using formula below:

$$FOMC_b^{nc} = \frac{TC_{nc}}{A_{GN}} \quad (đồng/kWh$$

Where:

TC_{nc}: Means total personnel costs in Base year including costs for salaries, social insurance, health insurance, unemployment insurance, union fees, and associated allowances (VND);

Total personnel costs TC_{nc} of Base year are determined on the basis of total personnel costs of power plants and converted to Base year as follows:

- Where salaries serving calculation of personnel costs of power plants equal regional minimum wages of the year in which electricity prices are calculated: The rate of conversion to Base year is determined by regional minimum wage;

- Where total personnel costs cannot be identified via methods mentioned above, total personnel costs in Base year are determined using formula below:

$$TC_{nc} = VDT_{XD+TB} \times k_{nc}$$

Where:

VDT_{XD+TB}: Means total construction costs and equipment costs determined on the basis of total investment under Point a Clause 2 Article 5 hereof (VND);

k_{nc}: Means percentage of personnel costs (%) of power plants agreed upon by the Seller and the Buyer and does not exceed values under Appendix I attached hereto. Where k_{nc} under Appendix I attached hereto is not defined for power plants, k_{nc} shall be agreed upon by the Seller and the Buyer;

A_{GN}: Average electricity generated over multiple years at delivery points between the Buyer and the Seller and calculated according to Clause 2 Article 5 hereof (kWh).

Article 7. Methods for determining variable costs of thermal power plants

Variable costs of thermal power plants in Base year $P^{BĐ}$ (VND/kWh) are determined using formula below:

$$P^{BĐ} = VC_b^{nlc} + VC_b^{nlp} + VC_b^{k} + P_b^{VC}$$

Where:

VC_b^{nlc} : Means variable cost components depending on primary fuel costs of power plants in Base year and is determined in accordance with Clause 1 of this Article (VND/kWh);

VC_b^{nlp} : Means variable cost components depending on secondary fuel costs of power plants in Base year and is determined in accordance with Clause 2 of this Article (VND/kWh);

VC_b^{k}: Means variable cost components depending on other factors of power plants in Base year and is determined in accordance with Clause 3 of this Article (VND/kWh);

P_b^{VC} : Means transportation costs for primary fuel for electricity generation in the Base year and is determined in accordance with Clause 4 of this Article (VND/kWh).

1. Variable cost components depending on changes to primary fuel costs of power plants in Base year VC_b^{nlc} , are determined using formula below:

$$VC_b^{nlc} = HR_{bq}^{nlc} \times P_b^{nlc} \quad (đồng/kWh)$$

Where:

HR_{bq}^{nlc}: Means average net heat rate of power plants using primary fuel agreed upon by the Seller and the Buyer, does not exceed values defined under fundamental design/technical design corresponding to total investment serving the calculation of electricity prices or specifications of equipment manufacturers, and is calculated in a manner corresponding to load under Appendix I attached hereto;

P_b^{nlc} : Means primary fuel costs in Base year and is calculated by determining weighted mean of fuel purchase agreements or written agreements (excluding VAT), in VND/kcal or VND/kJ or VND/BTU.

2. Variable cost components depending on changes to secondary fuel costs of power plants in Base year VC_b^{nlp} , are determined using formula below:

$$VC_b^{nlp} = HR_{bq}^{nlp} \times P_b^{nlp} \quad (đồng/kWh)$$

Where:

HR_{bq}^{nlp} : Means net heat rate of power plants using secondary fuel agreed upon by the Seller and the Buyer (kg/kWh or kcal/kWh or kJ/kWh or BTU/kWh);

P_b^{nlp} : Means secondary fuel prices in Base year, including costs for transportation to power plants and other costs as per the law (excluding VAT) (VND/kg or VND/kcal or VND/kJ or VND/BTU).

3. Variable costs adjusted by other factors of power plants in Base year VC_b^{k} are determined using the following formula:

$$VC_b^{k} = \frac{C_{vlp} + C_{kd} + C_k}{A_{GN}} \ (đồng/kWh)$$

Where:

C_{vlp}: Means total annual auxiliary material cost of power plants determined based on quantity and unit price of auxiliary materials used for electricity generation in the base year (VND). If data required for the calculation of total annual auxiliary material costs in the base year is insufficient, the costs components can be calculated using data from a year with sufficient data and converted to the base year at a rate of 2,5%/year;

C_{kd}: Means total initiation costs include fuel costs, other costs serving initiation (VND); number of initiation sessions agreed upon by both parties on the basis of electrical grid demand and operational characteristics of power plants. If data required for the calculation of total initiation costs in the base year is insufficient, these costs can be calculated using data from a year with sufficient data and converted to the base year at a rate of 2,5%/year;

C_k: Means annual repair and maintenance costs, including regular repair and maintenance costs based on total investment and equipment costs of power plants. Percentage of regular repair and maintenance costs are determined by the parties and do not exceed values defined under Appendix I attached hereto. Where power plants are not mentioned under Appendix I attached hereto, percentage of regular repair and maintenance costs shall be agreed upon by the parties;

A_{GN}: Average electricity generated over multiple years at delivery points between the Buyer and the Seller and calculated according to Point c Clause 2 Article 5 hereof (kWh).

4. Transportation costs for primary fuel of power plants in Base year P_b^{VC} are determined using formula below:

$$P_b^{VC} = HR_{bq}^{nlc} \times P_b^{v/c} \qquad (đồng/kWh)$$

Where:

HR_{bq}^{nlc}: Means net heat rate of power plants defined under Clause 1 of this Article;

$P_b^{v/c}$: Means transportation costs for primary fuel for electricity generation in Base year (excluding VAT), in VND/kcal or VND/kJ or VND/BTU and are determined as follows:

- For coal-fired thermal power plants: weighted mean of coal transport agreement or other written agreements;

- For thermal power plants using natural gas: weighted mean of gas collection, transportation, distribution fees approved by competent authority or set forth under transport agreements/written agreements;

- For thermal power plants using LNG: weighted mean of LNG transport agreement, LNG storage, regasification, and distribution agreements (if any) approved by competent authority and written agreements;

- For waste-to-power and biomass power plants: transportation costs for primary fuel for electricity generation agreed upon by the parties depending on power plant conditions.

Where primary fuel costs P_b^{nlc} already include transportation costs for primary fuel, collection, transportation, distribution, storage, regasification fees in fuel purchase agreements, transportation costs for primary fuel $P_b^{v/c}$ shall equal 0.

Article 8. Methods for determining specific connection prices

1. Specific connection prices (P^{DT}) shall serve to facilitate recovery of specific connection costs incurred by the Developer or distributed and shall be negotiated with the Buyer on the basis of investment, loan interests during operating period according to loan agreements, administrative costs, operation costs, maintenance costs, and other factors depending on agreement between the parties in order to allow Developer of power plants to recover construction, management, operation, maintenance costs as per the law. Unit of specific connection prices is VND/kWh or VND/kW or VND/month.

2. Once specific connection costs are settled, the parties shall re-evaluate specific connection prices in accordance with Clause 1 of this Article.

3. Specific connection costs are considered reasonable, legitimate costs and included in electricity purchase price in calculation of average electricity retail pricing of EVN.

Article 9. Methods for determining electricity generation and PPA prices of power plants that lack electricity purchase pricing stipulated by the Government, Prime Minister, or Ministry of Industry and Trade

Based on principles of determining electricity generation prices under this Circular, the Buyer and the Seller shall develop pricing plan for electricity generation and PPA in a manner appropriate to situations of each power plant and request the Ministry of Industry and Trade to approve.

Article 10. Temporary pricing

Where negotiation on electricity generation prices has not been concluded, the parties shall agree on a temporary price and request the Ministry of Industry and Trade to decide and apply until an official electricity price is decided.

Article 11. Methods for determining electricity generation prices for solar power plants, wind power plants that have entered into PPA with EVN and have not decided on an official electricity generation prices

Solar power plants and wind power plants that have entered into PPA with EVN before January 1 of 2021 and before November 1 of 2021 respectively but have not met eligibility to adopt electricity purchase prices under Clause 1 and Clause 3 Article 5 of Decision No. 13/2020/QD-TTg dated April 6 of 2020 of the Prime Minister and Clause 7 Article 1 of Decision No. 39/2018/QD-TTg dated September 10 of 2018 of the Prime Minister:

1. The parties shall rely on principles for determining electricity generation prices under this Circular and develop electricity generation pricing for power plants:

a) Base year of power plants undergoing electricity generation price negotiation means the year of commercial operation of power plants;

b) Where parts of power plants lack electricity generation prices, said electricity generation prices shall be determined by input data of the entire power plants.

2. Average annual delivered electricity is determined as follows:

a) On the basis of fundamental design (or technical design where fundamental design is not viable) appraised by competent authority;

b) Where method detailed under Point a of this Clause is not viable, both parties shall negotiate based on technical specifications in fundamental design or technical design dossiers used in notice on appraisal results of competent authority. Where annual delivered electricity is determined by fundamental design, total investment based on fundamental design shall be used; where annual delivered electricity is determined by technical design, total investment based on corresponding technical design shall be used.

3. Operating and maintenance costs of Base year of power plants $FOMC_b$ are determined using formula below:

$$FOMC_b = \frac{TC}{A_{GN}} \quad (đồng/kWh)$$

Where:

TC: Means total operating and maintenance costs of power plants and is determined by: TC = VDT x k

Where:

VDT: Means power plant investment (VND);

k: Means percentage of operating and maintenance costs (%) of power plants agreed upon by the parties and not exceeding values defined under Appendix attached to Circular No. 15/2022/TT-BCT dated October 3 of 2022 of Minister of Industry and Trade.

4. Other parameters serving calculation of electricity generation prices shall be negotiated by the parties. Documents serving PPA negotiation shall conform to Clause 1 Article 19 hereof.

Section 2. METHODS FOR DETERMINING ELECTRICITY GENERATION PRICES OF POWER PLANTS IN COMMERCIAL OPERATION

Article 12. Methods for determining electricity generation prices for power plants with expired PPA and unexpired economic life

Where PPA of power plants (not applying avoidable costs) have expired while economic life of the power plants has not expired, the parties shall negotiate on electricity generation prices for subsequent years until economic life of the power plants expires in a manner that the average fixed costs do not change relative to prices negotiated by the parties.

Article 13. Methods for determining electricity general prices for power plants with expired economic life

1. Fixed costs of power plants with expired economic life shall be determined in a manner that allows power plants to recover electricity production costs and shall be determined over a period compliant with major repair cycle of primary equipment and reasonable profits. Where documents of competent authority approving period of calculating fixed costs, said documents shall prevail.

2. Variable costs of power plants with expired economic life shall be determined in accordance with Article 7 hereof.

3. Where economic life of power plants has expired and power plant upgrade is implemented, both parties shall negotiate on prices of PPA of power plants in accordance with Article 4, Article 5, Article 6, and Article 7 hereof and depreciation period of primary equipment subject to the upgrade.

4. Term of contracts of power plants with expired economic life shall be negotiated by the parties based on major repair cycle of primary equipment.

Article 14. Methods for determining electricity generation prices of hydroelectricity plants with effective PPA and expired electricity generation prices or hydroelectricity plants applying avoidable cost tariff with expired PPA

1. Electricity generation prices are determined in a manner that allows power plants to recover investment (if any), electricity production costs, and ensures reasonable profits.

2. Electricity generation prices are determined for the remainder of economic life of the power plants.

3. Average electrical production is determined on the basis of statistics collected from operating years prior to the date on which electricity generation prices expire.

4. Operating and maintenance costs are negotiated between the parties.

5. Total investment for calculation of electricity generation prices shall be determined by remaining value of property as of the date on which electricity generation prices expire or PPA expires.

Article 15. Methods for determining electricity generation prices renegotiated based on settled investment

In respect of power plants undergoing renegotiation of electricity generation prices based on settled investment under Clause 2 Article 28 hereof:

1. Where settled investment is defined, the Seller must send documents relevant to settled investment to the Buyer.

2. The parties shall re-negotiate electricity prices as follows:

a) Methods for determining PPA prices conform to Article 4 hereof;

b) Parameters serving calculation of PPA prices conform to Article 4 hereof; input data are updated at the same time as settled investment is determined;

c) PPA prices for comparison with electricity generation price bracket do not exceed electricity generation price bracket of the year in which settled investment is approved;

d) Electricity generation prices apply from commercial operation date of power plants; annual fixed costs conform to Article 16 hereof; annual fixed costs of years preceding the date on which the parties enter into contracts on amendment to PPA depending on electricity prices determined on the basis of settled investment;

dd) Base year of power plants negotiating electricity price under settled investment is the year in which the settled investment is approved.

Section 3. METHODS FOR DETERMINING ANNUAL PPA PRICES

Article 16. Principles in determining annual fixed costs of PPA

1. The parties have the right to apply negotiated average fixed costs throughout contract years. Where the parties agree to convert the negotiated average fixed costs to annual fixed costs, the determination of these fixed costs must adhere to principles under Clause 2 of this Article.

2. On the basis of practical loan capacity and financial capacity of projects, both parties shall negotiate about average fixed costs of power plants and convert to annual fixed costs (FC_j: fixed cost of year j) as long as average fixed cost does not change compared to mutually agreed value and following principles are complied:

a) Financial discount rate when calculating annual fixed costs agreed by both parties shall equal the IRR of power plants;

b) Projects developers shall return loans for investment and construction of power plants according to deadline for repaying loan capital

Article 17. Principles of adjusting annual electricity generation prices in PPA

1. Components of operating and maintenance costs of power plants shall be adjusted on the principles below:

a) Components of operating and maintenance costs depending on major repair costs and other costs shall be adjusted by average inflation rate under Appendix I attached hereto. Both parties shall study and propose regulations on adjusting components of operating and maintenance costs depending on major repair costs and other costs in regard to items of a foreign currency origin;

b) Components of operating and maintenance costs depending on personnel costs shall be adjusted by changes to regional minimum wages at the time of payment or CPI published by General Statistics Office of Vietnam up to 2,5%/year.

2. On an annual basis, depending on total capital loan in foreign currency, repayment plan for capital loan in foreign currency, actual principal loan repaid, conversion rate agreed upon by the parties in electricity generation pricing plan, and conversion rate of the previous year, the parties shall calculate

and negotiate for solutions for calculating the difference in conversion rates. Difference in FED rates (VND) is calculated using the formula below:

$$FED = \sum_{i=1}^{m} \sum_{j=1}^{n} D_{i,j} \times (\lambda_{i,j} - \lambda_{i,b})$$

Where:

m: Means number of foreign currency types in electricity generation pricing agreed upon by the parties (type);

n: Means number of principal installments of foreign currency i (installment);

$D_{i,j}$: Means number of principal loan in foreign currency i paid in installment j in year of calculation;

$\lambda_{i,j}$: Means conversion rate in installment j of foreign currency i in the year (.../VND);

$\lambda_{i,b}$: Means conversion rate of foreign currency i agreed upon by the parties in electricity generation pricing (.../VND).

Article 18. Methods for determining PPA prices of power plants at the time of payment

PPA prices of power plants at the time of payment for electricity bill of month t, year j are $P_{C,j\,t}$ (VND/kWh) and are determined using formula below:

$$P_{C,j,t} = FC_j + FOMC_{j,t} + P_{j,t}^{BĐ}$$

Where:

FCj: Means fixed costs of the year j determined in accordance with Article 16 hereof (VND/kWh);

$FOMC_{j,t}$: Means operating and maintenance costs of month t, year j determined under Clause 1 of this Article (VND/kWh);

$P_{j,t}^{BĐ}$: Means variable costs of month t and year j determined in accordance with Clause 2 of this Article (VND/kWh).

1. Operating and maintenance costs of month t and year j are determined using formula below:

$$FOMC_{j,t} = FOMC_j^{scl} + FOMC_{j,t}^{nc}$$

Where:

$FOMC_j^{scl}$: Means components of operating and maintenance costs depending on major repair costs and other costs in year j (VND/kWh);

$FOMC_{j,t}^{nc}$: Means components of operating and maintenance costs depending on personnel costs in month t and year j (VND/kWH).

a) Components of operating and maintenance costs depending on major repair costs and other costs $FOMC_j^{scl}$ are determined using formula below:

$$FOMC_j^{scl} = FOMC_b^{scl} \times (1+i)^{l-1}$$

Where:

$FOMC_b^{scl}$: Means operating and maintenance costs depending on major repair costs and other costs in Base year determined in accordance with Clause 1 Article 6 hereof;

i: Means inflation rate of components of operating and maintenance costs depending on major repair costs and other costs according to Appendix I attached hereto;

l: Number of year of payment from Base year (with Base year l =1).

b) Components of operating and maintenance costs depending on personnel costs of month t and year j $(FOMC_{j.t}^{nc})$ are determined as follows:

- Where salaries included in electricity pricing equal regional minimum wages, components of operating and maintenance costs depending on personnel costs are determined using formula below:

$$FOMC_{j.t}^{nc} = FOMC_b^{nc} \times \frac{L_{min,j,t}}{L_{min,b}}$$

Where:

$FOMC_b^{nc}$: Means operating and maintenance costs depending on personnel costs of Base year determined in accordance with Clause 2 Article 6 hereof;

$L_{min,j,t}$: Means regional minimum wages at the time of payment of month t and year j (VND/month);

$L_{min,b}$: Means regional minimum wage of Base year (VND/month).

- Where total personnel costs TCnc are calculated based on percentage of investment in construction and equipment, components of operating and maintenance costs depending on personnel costs are determined using formula below (VND/kWh):

$$FOMC_{j,t}^{nc} = FOMC_b^{nc} \times \prod_{i=1}^{l} (1+i_1)$$

Where:

$FOMC_b^{nc}$: Means operating and maintenance costs depending on personnel costs of Base year determined in accordance with Clause 2 Article 6 hereof;

i_1: Means inflation rate of components of operating and maintenance costs depending on personnel costs determined by ratio of CPI of the year (j-1) to that of the year (j-2) published by the General Statistics Office of Vietnam in December of the year (j-1) and up to 2,5%/year;

l: Means number of payment year from the Base year (where Base year l = 1, i_1 = 0).

2. Variable costs of thermal power plants in month t and year j $(P_{i,t}^{BĐ})$ (VND/kWh) are determined using formula below:

$$P_{j,t}^{BĐ} = VC_{j,t}^{nlc} + VC_{j,t}^{nlp} + VC_j^k + P_{j,t}^{VC}$$

Where:

$VC_{j,t}^{nlc}$: Means components of variable costs depending on changes to primary fuel costs of power plants in month t and year j determined in accordance with Point a of this Clause (VND/kWh);

$VC_{j,t}^{nlp}$: Means components of variable costs depending on changes to secondary fuel costs of power plants in month t and year j determined in accordance with Point b of this Clause (VND/kWh);

VC_j^k : Means components of variable costs depending on other changes of power plants of year j determined in accordance with Point c of this Clause (VND/kWh);

$P_{j,t}^{VC}$: Means transportation costs for primary fuel of power plants in month t and year j determined in accordance with Point d of this Clause (VND/kWh).

a) Components of variable costs depending on changes to primary fuel costs of power plants in month t and year j $VC_{j,t}^{nlc}$ determined using formula below:

$$VC_{j,t}^{nlc} = HR_{bq}^{nlc} \times k_{HR} \times P_{j,t}^{nlc} \times (1+(l-1)\times k_{HS})$$

Where:

HR_{bq}^{nlc}: Means average net heat rate determined in accordance with Clause 1 Article 7 hereof;

k_{HR}: Means adjustable factor for average net heat rate regarding actual operating conditions such as coolant temperature, ambient temperature, humidity, load negotiated by the parties or in actual operation from operation cycle to operation cycle;

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of year of commercial operation of power plants;

$P_{j,t}^{nlc}$: Means primary fuel costs for electricity generation at the time of payment of month t and year j determined by weighted mean of quantity of invoices under fuel purchase agreements in a period of time negotiated by the parties.

b) Components of variable costs depending on changes to secondary fuel costs of power plants in month t and year j $(VC_{j,t}^{nlp})$ determined using formula below:

$$VC_{j,t}^{nlp} = VC_b^{nlp} \times (1+(l-1)\times k_{HS}) \times \frac{P_{j,t}^{nlp}}{P_b^{nlp}}$$

Where:

VC_b^{nlp} : Means components of variable costs depending on changes to secondary fuel costs of power plants in Base year determined under Clause 2 Article 7 hereof;

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of year of commercial operation of power plants;

$P_{j,t}^{nlp}$: Means secondary fuel costs for electricity generation including costs for transporting fuel to power plants at the time of payment of month t and year j;

P_b^{nlp} : Means secondary fuel costs for electricity generation in Base year in Clause 2 Article 7 hereof.

c) Components of variable costs adjusted according to other variations of power plants in the year j VC_j^k are determined using the following formula:

$$VC_j^k = VC_b^k \times (1+(l-1)\times k_{HS}) \times (1+i)^{m-1}$$

Where:

VC_b^k: Means components of variable costs adjusted by other variations of power plants in Base year determined under Clause 3 Article 7 hereof;

i: Means inflation rates of components of variable costs depending other variations based on rates under Appendix I hereof;

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of year of commercial operation (from commercial operation date of power plants, the first commercial operation year of power plants starts from the commercial operation date of the first generator group, l = 1);

m: Means number of payment year starting from Base year (in case of the base year, *m* = 1).

d) Transportation costs for primary fuel of power plants in month t year j $P_{j,t}^{VC}$ (VND/kWh) are determined using formula below:

$$P_{j,t}^{VC} = HR_{bq}^{nlc} \times k_{HR} \times P_{j,t}^{v/c} \times (1+(l-1)\times k_{HS})$$

Where:

HR_{bq}^{nlc} : Means average net heat rate determined in accordance with Clause 1 Article 7 hereof;

k_{HR}: Means adjustable factor for average net heat rate regarding actual operating conditions such as coolant temperature, ambient temperature, humidity, load negotiated by the parties or in actual operation from operation cycle to operation cycle (if any);

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of year of commercial operation of power plants;

$P_{j,t}^{v/c}$: Means transportation costs for primary fuel at the time of payment of month t and year j, determined by weighted mean of quantity of invoices under fuel transport agreements and LNG storage agreements, gas regasification and distribution contracts (if any) (VAT not included), to be specific:

- For coal-fired thermal power plants: weighted mean according to coal transport agreements;

- For thermal power plants using natural gas: weighted mean of gas collection, transportation, and distribution fees approved by competent authority;

- For thermal power plants using LNG: weighted mean according to LNG transport agreements and LNG storage agreements, gas regasification and distribution contracts (if any) approved by competent authority;

- For waste-to-power and biomass power plants: transportation costs for primary fuel for electricity generation agreed upon by the parties depending on power plant conditions.

Where fuel purchase agreements already include transportation costs for primary fuel, components of respective transportation costs for primary fuel $P_{j,t}^{v/c}$ equal 0.

3. Total activation costs in the month t of power plants $C_{kd,}$ (VND), are determined using formula below:

$$C_{kd_v} = \sum_{s=1}^{S} \sum_{f=1}^{2} \sum_{u=1}^{U} p_{u,f,s} \times (M_{u,f,s} \times D_{u,f,s} + C_{kd_k})$$

Where:

u: Means order of generator group of power plants;

U: Means number of generator groups of power plants;

f: Means type of fuel (where primary fuel f= 1; secondary fuel f = 2);

s: Means activation status of generator group;

S: Means number of activation status of generator group;

$P_{u,f,s}$: Means number of activation of generator group u, using fuel f, at a state s in the month;

$M_{u,f,s}$: Means amount of coal consumed (kg) for coal-fired thermal power or heat consumed (BTU) for gas turbine per activation of generator group u, using fuel f, at a state s;

$D_{u,f,s}$: Means unit price of fuel required per activation of generator group u, using fuel f, at a state s, in VND/kg for coal and VND/BTU for gas fuel;

C_{kd_k}: Means total other costs required per activation, in VND.

Payment of activation costs of thermal power plants shall conform to regulations of electricity market stipulated by the Ministry of Industry and Trade.

For waste-to-energy and biomass power plants, payment of activation costs shall be negotiated by the parties.

Section 4. DOCUMENTS SERVING NEGOTIATION OF PPA

Article 19. Documents serving negotiation of PPA between the parties

1. Documents proposing negotiation on PPA for new power plants include but are not limited to:

a) Draft PPA according to Appendix III attached hereto;

b) Written approval for investment guidelines of Decision on investment guidelines or Certificate of investment registration of projects;

c) Decision on construction investment and presentation, appraisal reports for power plant investment projects produced by independent advisors, and attachments.

d) Decision approving initial total investment or revised total investment effective as of the date on which negotiation on electricity generation prices and main contents of fundamental design of investment projects relevant to PPA negotiation is conducted, appraisal reports for fundamental design and written notice on appraisal results of fundamental design, total investment issued by construction authorities as per the law (if any);

dd) Negotiation on connection of power plants to national electricity system and connection solution;

e) Loan agreements or documents, texts between Developer and creditors, disbursement plan or recordings for all loan capital;

g) Fuel supply contracts for power plants indicating fuel price for electricity generation, fuel transportation costs, LNG storage costs, gas regasification and distribution costs, and other fees, fuel delivery points and fuel supply time limit;

h) Documents calculating loss of capacity and electricity in transformers, power lines from step-up transfers to points connected to national electrical system and documents calculating self-sufficient electricity in power plants;

i) Documents calculating net heat rate in case of thermal power plants;

k) Electricity pricing defined in accordance with Section 1 and Section 3 of Chapter II hereof;

l) Other relevant documents.

2. Documents serving negotiation on PPA of active power plants include but are not limited to:

a) Draft PPA using form under this Circular;

b) Existing PPA;

c Technical dossiers of power plants, technical specifications of SCADA/EMS, protective and automated relay system, P-Q operational characteristics of generator groups thus far;

d) Fuel supply agreements;

dd) Electricity pricing of power plants defined in accordance with Section 1, Section 2, and Section 3 Chapter II hereof;

e) Financial statement of power plants of recent years until the date on which negotiation on PPA is conducted.

Chapter III

EXAMINATION OF PPA

Article 20. Application of sample PPA

1. Sample PPA under Appendix III attached hereto serve as the basis for the parties to negotiate. Both parties have the right to discuss and amend terms and clauses under PPA in a manner compliant with Vietnam's laws.

2. Language in use in the PPA shall be Vietnamese. The parties may negotiate for addition of PPA in the English language.

Article 21. Examination of PPA

Both parties shall negotiate and request the Electricity Regulatory Authority of Vietnam to examine PPA following the negotiation and appending confirmatory signature on PPA.

Chapter IV

IMPLEMENTATION

Article 22. Responsibilities of Electricity Regulatory Authority of Vietnam

1. Examine and provide feedback regarding PPA and amendments thereto.

2. Provide guidelines and resolve issues that arise during PPA negotiation between the parties.

3. Resolve disputes that arise during implementation of PPA where the parties choose to resolve their disputes at Electricity Regulatory Authority of Vietnam.

Article 23. Responsibilities of EVN

Take charge and cooperate with the Buyer, the Seller in calculating, unifying solutions for paying rate differences in implementation of PPA in accordance with this Circular.

Article 24. Responsibilities of the Buyer

1. Negotiate and discuss with the Seller regarding reallocation of Specific connection costs with Developer in respect of power plants connected to power lines and electrical substations and revise specific connection prices (if any) to allow the Seller to recover construction, administrative, operation, and maintenance costs for power lines and electrical substations as per the law.

2. Negotiate PPA with the Seller in accordance with this Circular; ensure accountability, accuracy, legitimacy, and adequacy of provided data and documents. Cooperate with the Seller in requesting the Electricity Regulatory Authority of Vietnam to examine PPA as per the law.

3. Cooperate with the Seller in calculating, unifying rate differences in implementation of PPA in accordance with this Circular and providing to EVN for consideration of payment solutions.

Article 25. Responsibilities of the Seller

1. Cooperate with the Seller in requesting the Electricity Regulatory Authority of Vietnam to examine PPA as per the law; ensure accountability, accuracy, legitimacy, and adequacy of provided data and documents.

2. Produce investment projects for construction of power lines and electrical substations to load production of several power plants upon being assigned with construction investment by competent authority in accordance with national electricity development planning and provincial planning (if any). Power lines and electrical substation must be able to operate, load electrical production of power plants in the area in accordance with approved planning.

3. Allow power plants under approved national electricity development planning and provincial planning to be connected to power lines and electrical substation to which they are assigned for investment in order to supply power to national electrical system.

4. Negotiate with Developers of power plants regarding allocation of Specific connection costs and adjust specific connection prices (if any) to allow Developers to recover construction, administrative, operational, and maintenance costs of power lines and electrical substations as per the law.

5. Manage, operate, and maintain power lines, electrical substations to which they are assigned for investment and construction as per the law.

6. Provide adequate information, ensure accuracy, legitimacy, adequacy of data, documents provided to relevant entities and authorities during negotiation and examination of PPA.

7. Select fuel providers, fuel transport service providers and enter into fuel supply and transport agreements in a manner compliant with Vietnam's laws and ensuring equality, competitiveness, and transparency.

8. Be held accountable to all input data serving calculation of PPA prices and control fuel supply and transport agreements in a manner that ensure fuel origin is legitimate, of competitive prices, and transparent as per the law.

9. Cooperate with the Buyer in calculating annual rate differences in implementation of PPA in accordance with this Circular and requesting EVN to consider payment solutions.

Article 26. Responsibilities of fuel providers and fuel service providers

1. For gas fuel

a) Domestic gas fuel providers and service providers shall enter into GSPA, fuel supply agreements, gas transport agreements (GTA) in accordance with relevant laws.

b) Providers and service providers of gas fuel imported via pipelines and LNG shall provide gas in accordance with relevant law provisions, to be specific:

- Where delivery occurs at ports of export: Import price shall be gas prices applicable at delivery points at ports of export;

- Where delivery occurs at Vietnamese gas distribution stations or LNG ports, gas prices shall include purchase prices of gases, import LNG and reasonable, legitimate costs relating to the import (if any) such as import duties, financial expenses, insurance, profits, and other costs pertaining to import activities of fuel providers.

2. For coal fuel

Select coal transport service providers and enter into coal transport agreements in accordance with Vietnam's laws in a manner that ensures equality, competitiveness, and transparency.

Article 27. Amendment to PPA in case of amendment to policies, regulations promulgated by competent authority

1. Where policies and/or regulations promulgated by competent authority are amended in a way that negatively affect legitimate benefits of either party, the parties have the right to discuss and re-negotiate electricity generation prices.

2. Where competent authority (inspection, audit authority) conclude details pertaining to electricity generation prices and/or PPA, the parties shall discuss and re-negotiate electricity generation and PPA prices.

3. Where the Seller is assigned with investment in upgrade and renovation of work items on power lines and electrical substations according to planning, both parties have the right to additionally discuss and negotiate for specific connection prices to allow Developers of power plants to recover construction, administrative, operational, and maintenance costs as per the law.

4. Where active power plants require investment, renovation, and upgrade to meet national technical regulations on environment, the parties shall negotiate in order to include these costs in electricity generation prices of power plants. Calculation of electricity generation prices shall conform to methods agreed upon by the parties under signed PPA and be reported to Ministry of Industry and Trade.

5. Where power plants are equipped with schemes for handling, consuming ashes and slags approved by competent authority to have met waste, emission, and environmental protection standards, the parties shall negotiate to include these costs in components of specific costs serving handling, consumption of ashes and slags under PPA in a manner that adheres to principles below:

a) Scope of investment and operational procedures of ash, slag handling structures are approved by competent authority;

b) Entities for handling of ashes and slags of power plants must be selected in a manner that adheres to regulations and ensures competitiveness and transparency;

c) The parties shall settle ash and slag handling costs in accordance with practical situations of the previous year. Revenues generated by the sale of ashes and slags shall cover ash, slag handling costs and reduce electricity generation prices of power plants.

Article 28. Transition clause

1. Where PPAs have been signed before the effective date hereof, the parties shall continue to implement said PPAs until termination thereof.

2. Where electricity projects have entered into PPA in accordance with Circular No. 56/2014/TT-BCT, Circular No. 51/2015/TT-BCT and new electricity projects initiated before September 19 of 2017, the parties shall, when settled investment is available, request re-calculation of electricity generation prices depending on approved settled investment under Article 15 hereof.

3. Where power plants have entered into PPAs, the parties have the right to negotiate and discuss amendment to PPAs in accordance with this Circular.

4. For every phase of the electricity market, the parties are responsible for revising and amending clauses under PPAs accordingly.

Article 29. Entry into force

1. This Circular comes into force from June 1 of 2024 and replaces Circular No. 57/2020/TT-BCT dated December 31 of 2020 of the Minister of Industry and Trade.

2. Annul Article 2 of Circular No. 31/2022/TT-BCT dated November 8 of 2022 of the Minister of Industry and Trade on amendment to Circular No. 57/2014/TT-BCT dated December 19 of 2014 of the Minister of Industry and Trade on methods and procedures for developing, promulgating electricity generation price range and Circular No. 57/2020/TT-BCT dated December 31 of 2020 of the Minister of Industry and Trade on methods for determining electricity generation price and power purchase agreement price.

3. Annul Circular No. 02/2023/TT-BCT dated January 19 of 2023 of the Minister of Industry and Trade on annulment to Circular No. 57/2020/TT-BCT dated December 31 of 2020 of the Minister of Industry and Trade methods for determining electricity generation price and power purchase agreement price.

4. Difficulties that arise during implementation must be reported to Ministry of Industry and Trade./.

PP. MINISTER
DEPUTY MINISTER

Nguyen Sinh Nhat Tan

APPENDIX I

PARAMETERS USED IN CALCULATION OF PPA PRICES
(Attached to Circular No. 07/2024/TT-BCT dated April 12 of 2024 of the Minister of Industry and Trade)

No.	Entry	Parameters
I	**Economic life**	
1	Coal-fired thermal power plant	30 years
2	Combined cycle power plant	25 years
3	Hydroelectricity plant	
3.1	Greater than 20 MW	40 years
3.2	From 3 MW to 20 MW	35 years
3.3	Less than 3 MW	25 years
4	Solar power plant	20 years
5	Wind power plant	20 years
6	Waste-to-energy plant	20 years
7	Biomass power plant	20 years
II	**Percentage of operating and maintenance costs of thermal power plant (%)**	
1	Percentage of major repair costs and other costs (k_{scl})	
1.1	Coal-fired thermal power plant	2,5%
1.2	Gas turbine combined cycle power plant	4,37%
1.3	Waste-to-energy plant	1,4%

2	Percentage of personnel costs (k_{nc})	
2.1	Coal-fired thermal power plant	1,5%
2.2	Gas turbine combined cycle power plant	1,9%
2.3	Waste-to-energy plant	0,7%
III	**Percentage of operating and maintenance costs of hydroelectricity plant (%)**	
1	Percentage of major repair costs and other costs (k_{scl})	
1.1	Of a capacity scale of 150 MW or lower	1,2%
1.2	Of a capacity scale from 151 MW to 300 MW	0,9%
1.3	Of a capacity scale of 301 MW or higher	0,6%
2	Percentage of personnel costs (k_{nc})	
2.1	Of a capacity scale of 150 MW or lower	0,8%
2.2	Of a capacity scale from 151 MW to 300 MW	0,5%
3.3	Of a capacity scale of 301 MW or higher	0,3%
IV	**Average number of hours operating at maximum capacity in multiple years - T_{max} (hours)**	
1	Coal-fired thermal power plant	6.500
2	Gas turbine combined cycle power plant	6.000
V	**Average capacity loss percentage throughout economic life of thermal power plant (%)**	
1	Coal-fired thermal power plant	1,3%
2	Gas turbine combined cycle power plant	3%
VI	**Percentage of annual repair and maintenance costs (%)**	
1	Coal-fired thermal power plant	0,8%
2	Gas turbine combined cycle power plant	0,8%
VII	**Average inflation rate (%/year)**	
1	Inflation rate of components of operating and maintenance costs depending on major repair costs	2,5%/year
2	Inflation rate of price components depending on other changes	2,5%/year
VIII	**Average load of thermal power plant**	**85%**

APPENDIX II

PROJECT FINANCIAL ANALYSIS FORMS

(Attached to Circular No. 07/2024/TT-BCT dated April 12 of 2024 of Minister of Industry and Trade)

Schedule 1 - Business result estimates

Unit: ……

No.	Entry	Year N	Year N+1	Year N+2	...	Total
I	**Total income**					
1	Revenues generated by electricity sale					
2	Other benefits provided by the project (if any)					
3	Subsidization (if any)					
II	**Total costs**					
1	Depreciation of fixed assets					
2	Operating and maintenance costs					
3	Other costs (if any)					

4	Loan interests					
III	**Pre-tax profits (I) - (II)**					
IV	**Corporate income tax**					
V	**Post-tax profits (III) - (IV)**					

Note: Revenues generated from electricity sale do not include VAT, water resource tax, licensing fees for extraction of water resources, forest environment fees, environmental protection fees in regard to solid wastes/industrial wastewater (applicable to thermal power plants) and other taxes (if any). Schedule 1 is produced from the year in which income is generated.

Schedule 2 - Capital accumulation and financial indicators

Unit: ……

No.	Entry	...	Year N-1	Year N	Year N+1	...	Total
I	**Sources**						
1	Revenues generated by electricity sale						
2	Other benefits provided by the project (if any)						
3	Subsidization (if any)						
4	Remaining value of fixed assets (calculated in the last year of the project)						
5	Recovered value of working capital (calculated in the last year of the project)						
II	**Usage**						
1	Equity, loan capital (distributed by project schedule)						
2	Other costs (if any)						
3	Loan principal						
4	Loan interests						
5	Corporate income tax						
III	**Capital accumulation (I) - (II)**						
IV	**Discount capital accumulation**						
V	**Accrued discount capital accumulation**						

Note: Revenues generated from electricity sale do not include VAT, water resource tax, licensing fees for extraction of water resources, forest environment fees, environmental protection fees in regard to solid wastes/industrial wastewater (applicable to thermal power plants) and other taxes (if any). Schedule 2 is produced from the year in which construction starts.

APPENDIX III

SAMPLE POWER PURCHASE AGREEMENT

(Attached to Circular No. 07/2024/TT-BCT dated April 12 of 2024 of the Minister of Industry and Trade)

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

POWER PURCHASE AGREEMENT

.....POWER PLANT

Between

…… COMPANY

(THE SELLER)

- and -

…… COMPANY

(THE BUYER)

AGREEMENT NO. ……/20.../HD-NMD-[name of Power plant]

…… (location and date)

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

POWER PURCHASE AGREEMENT

Pursuant to the Law on Electricity dated December 3, 2004 and the Law on amendment to the Law on Electricity dated November 20, 2012;

Pursuant to the Law on Commerce dated June 14 of 2005;

Pursuant to the Civil Code dated November 24 of 2015;

Pursuant to Decree No. 137/2013/ND-CP dated October 21, 2013 of the Government elaborating the Law on Electricity and the Law on amendments to the Law on Electricity;

Pursuant to Circular No. …… of Minister of Industry and Trade on operation of competitive electricity market; [1]

Pursuant to Circular No. …… of Minister of Industry and Trade on methods for determining electricity generation and PPA prices; [2]

Pursuant to electricity sale and purchase demands of the Buyer and the Seller,

As of …… (date) at ……(location) .

The parties include:

The Seller: _____

Address: _____

Phone:_____ Fax:_____

Tax Identification Number:_____

Account:_____Bank_____

_____

Represented by: _____

Position:_____ authorized by _____ under document No. _____ , issued on_____

The Buyer: (name of company)

Address: _____

Phone:_____ Fax:_____

Tax Identification Number:_____

_____

[1] Các bên hiệu chỉnh theo tên văn bản có hiệu lực tại thời điểm ký Hợp đồng

[2] Các bên hiệu chỉnh theo tên văn bản có hiệu lực tại thời điểm ký Hợp đồng

Account:_____Bank_____

_____

Represented by: _____

Position:_____ authorized by _____ under document No. _____ , issued on_____

Have reached an agreement regarding Power purchase agreement for …… Power Plant (name of power plant) as follows:

Article 1. Definitions

For the purposes of this Agreement, the following terms shall have the meanings hereby assigned to them:

1. The Seller means the ……Company owning the Power plant.

2. The Buyer means ……

3. Connection point means ……

4. System and market operator means ……

5. National electrical system means ……

6. Primary metering system means ……..

7. Backup metering system means ……

8. Agreement means this Power purchase agreement, including Appendices and amendments thereof.

9. Fuel purchase agreement means an agreement between the Seller and fuel trading entity for the supply of fuel for power plant, is signed in accordance with applicable laws, guarantees legitimate fuel sources and competitive, transparent prices.

10. Fuel transport agreement means an agreement between Electric utility or fuel trading entity for the transportation of fuel to power plants, is signed in accordance with applicable laws, and guarantees competitive, transparent prices.

11. Liquefied natural gas (LNG) storage, regasification, and distribution agreement means an agreement between Electric utility or fuel trading entity and LNG storage investment, management entity for the purpose of storing, regasifying, distributing, and supplying gas for power plants and is signed in a manner compliant with applicable laws with competitive and transparent prices.

12. Dispatch order means order for commanding, controlling mode of operation of electrical system in real time.

13. Day means a calendar day.

14. Commercial operation date of generator group is ……

15. Commercial operation date of Power plant is ……

(Where PPA is signed for power plant groups, commercial operation date is decided for each power plant).

16. Power plant is ……

17. Technical regulations and standards on electrical engineering mean ……

18. Connection equipment means power lines, metering system, control system, protective relays, switchgears, communication system, and constructions allowing Power plant to be connected to connection point.

19. Regulations on competitive electricity market mean regulations on operation of competitive electricity market by levels decided by competent authority.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 2. Agreement effectiveness and effective period

1. Agreement effectiveness

The Agreement comes into force from the date on which legitimate representatives of the parties official sign the Agreement unless otherwise agreed.

2. Agreement effective period

Other than extension or termination of Agreement term, effective period of the Agreement starts from the date on which the Agreement enters into force until …… years inclusive after commercial

operation date of the Power plant.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 3. Electricity sale and purchase

1. Agreement prices: Conforms to Appendix V of the Agreement.

2. Agreement productivity: Conforms to Appendix V of the Agreement.

3. Electricity payment: On a monthly basis, the Buyer must pay the Seller in accordance with Appendix V hereof.

The parties shall negotiate and agree on implementation of payments that arise as a result of dispute resolution in accordance with Article 8 hereof.

(Where power plants cover fuel costs, the parties have the right to negotiate and amend details accordingly).

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 4. Commitment

The parties hereby undertake:

1. Each party is legitimately established to operate in accordance with Vietnamese laws, entitled to signing and executing the Agreement, capable of conducting business activities, obtaining assets and executing Agreement obligations.

2. The signing and execution of Agreement of either party does not violate terms under regulation of the respective party, regulations of the law, decisions and judgments of the courts by which the party is regulated, and other contracts, agreements to which the party is a signatory.

3. The signing and execution of Agreement of the parties shall adhere to requirements and contents of License to operate in electrical sector issued by competent authority and relevant law provisions.

4. The parties are not the defendants in lawsuits filed in court or commercial arbitration or competent authority where the result of said lawsuits may drastically affect financial capability or the ability to fulfill the parties' obligations under the Agreement or affect value and effectiveness of the Agreement.

5. The parties undertake to fulfill obligations and details under this Agreement.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 5. The Seller's obligations prior to commercial operation date

1. Requirements pertaining to licenses and written approval

a) The Seller must adhere to procedures in order to obtain necessary licenses and written approval from competent authority for the purpose of Power plant construction and operation; undertake to comply with and maintain eligibility of those licenses as per the law within effective period of the Agreement;

b) Within …… days since the commercial operation date of generator groups and of Power plant, the Seller must send legitimate copies of documents mentioned under Section II of Appendix VII of the Agreement to the Buyer.

2. Reports on project schedule

a) The Seller undertakes to meet project schedule under Section I Appendix VII of the Agreement;

b) The Seller must produce and submit reports on Power plant construction schedule, relevant documents proving project schedule, evaluating project schedule relative to previous commitments, and proposing solutions to meet project schedule to the Buyer before …… (date) of the first month of each Quarter.

3. Connection, test, and operation

….

4. Commercial operation date

….

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 6. Connection responsibility and metering system

1. Connection responsibility

The Seller has the responsibility to: …

a) negotiate, invest, manage, operate equipment for electricity connection, transmission, and delivery

to the Buyer through delivery points in accordance with regulations on electricity transmission system promulgated by the Ministry of Industry and Trade, relevant technical regulations and standards in electrical sector;

b) negotiate, invest, install, manage, operate, and maintain equipment in data collection and transmission, protective relay and automated control system of Power plant in order to connect to SCADA/EMS between Power plant and System and market operator to serve operation of Power plant.

2. Metering system

a) The Seller is responsible for investing, installing, managing, operating, maintaining, and periodically inspecting equipment of primary metering system and backup metering system in accordance with Regulations on electricity metering of the Ministry of Industry and Trade. Examination and inspection of metering equipment or verification of deviation of metering equipment must be conducted by competent or authorized organizations. All metering equipment must be sealed and lead-clamped following inspection;

b) Where necessary, a party has the right to request additional inspection or irregular inspection of metering equipment and system. The Seller is responsible for conducting examination, inspection at request of the Buyer. Where deviation of metering equipment subject to irregular examination and inspection exceeds the permissible limit, the Seller must incur irregular examination and inspection costs. Where deviation of metering equipment subject to irregular examination and inspection is within the permissible limit, the requesting party must incur irregular examination and inspection costs;

c) The Seller must send inspection or examination record and deviation values of metering equipment to the Buyer. The Seller must notify the Seller regarding the examination and inspection of metering system in advance. The Buyer is responsible for assigning witness to the examination, inspection, unsealing, sealing, and attachment of lead clamp of electric meter;

d) Where deviation of metering equipment exceeds the permissible limit set under Regulations on electricity metering of the Ministry of Industry and Trade, the Seller is responsible for calibrating or replacing the metering equipment. Where either party deems that metering equipment is damaged and/or not functioning, the party must immediately notify the other party and the Seller must examine and repair/replace said metering equipment;

dd) Electrical production is determined in accordance with Appendix II of the Agreement.

Where primary metering system is malfunctioning or deviation of primary metering system is higher than the required accuracy class, electrical production for sale and purchase between the parties during the period in which primary metering system is malfunctioning or deviation of primary metering system is higher than the required accuracy class shall be calculated and adjusted on the basis of measurement results of backup metering system of adequate accuracy class in order to determine electrical production for payment purposes. In this case, deviation of backup metering devices is converted to permissible deviation of primary metering equipment by deviation conversion method or system deviation. Where backup metering system also malfunctions or deviation of backup metering system also exceeds permissible limit, electrical production for sale and purchase between the parties shall be determined as follows:

(i) Where deviation of functioning primary metering system exceeds the permissible limit, electrical production for sale and purchase between the parties shall be determined by measurement reading of primary metering system converted to electrical production equivalent to 0% deviation on the basis that the highest deviation of metering equipment does not qualify for accuracy class determined by testing entities and written records or agreement between relevant parties;

(ii) Where primary metering system does not function, both parties shall rely on the situation and actual deviation of metering systems on the basis of records of inspecting entities and data acknowledged by the parties to agree on methods for calculating and determining electrical production that needs calibrating during period of inaccurate metering. In case of failure to agree on methods for calculating and determining electrical production that needs calibrating, the parties must settle disputes in accordance with Article 13 hereof.

(iii) Calculation of electrical production for the purpose of determining arrears/refund starts from the date on which deviation is found to exceed accuracy class to the date on which the faulty metering equipment is replaced. Where the former date cannot be identified, calculation of electrical production for the purpose of determining arrears/refund starts from the previous 3 months of delivery until the date on which the faulty metering equipment is replaced.

d) Where metering equipment is burnt or damaged, the Seller must replace or repair in the shortest amount of time possible so that metering equipment functions and meets technical requirements. Repaired or replacing equipment must be inspected as per the law before use.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 7. Dispatch and operation of Power plant

1. The Seller is responsible for adhering to regulations on dispatch and operation of Power plant in national electrical system in accordance with Regulations on electricity transmission system, Regulations on competitive electricity market, Procedures for national electrical system dispatch of the Ministry of Industry and Trade, technical regulations and standards on electrical sector, and other relevant documents. The Seller must carry out maintenance and operate generator groups of Power plant in accordance with technical characteristics under Appendix I and Appendix III hereof.

2. The Seller must install, operate, and carry out maintenance of equipment in order to synchronize Power plant with national electrical system. The Seller must adhere to Regulations on electricity transmission system of the Ministry of Industry and Trade, technical regulations and standards on electrical sector, and other relevant regulations when synchronizing Power plant with national electrical system.

3. Where operational method of national electrical system poses risks to primary equipment of Power plant and/or causes casualties to humans and equipment, the Seller has the right to isolate generator groups from national electrical system.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 8. Billing and payment

1. Electricity billing and payment

Billing is made in accordance with invoice laws.

2. Disputes in payment

a) Where the Buyer disagrees with any or all amounts payable in electricity bill, the Buyer must issue notice on amounts specified in electricity bill and reasons for the disagreement before payment deadline. The Buyer must settle amounts payable not subject to the dispute before or at payment deadline;

b) Within …… days from the date on which notice on the dispute amounts, the Seller must respond the Buyer in writing. Where both parties disagree on the dispute amount, either party has the right to settle the dispute in accordance with Article 13 of the Agreement. Where disputes originate from information within payment listing of system and market operator, the parties must settle disputes in accordance with regulations on competitive electricity market of the Ministry of Industry and Trade.

c) Where a party does not file notice on amounts payable subject to dispute within …… days from the date on which invoice is issued, said party waives their right to file a complaint regarding amounts payable in the issued invoice.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

3. Interest calculation

Interest is calculated for:

a) Monthly electricity payment arrears;

b) Amounts payable in accordance with decision on dispute settlement under Article 13 of the Agreement;

c) Adjustment to monthly electricity payment.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

4. Compensation

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 9. Events affecting Agreement execution and actions

1. Events affecting the Buyer’s ability to execute the Agreement

a) Events relating to dissolution, bankruptcy of the Seller, including:

(i) The Seller is dissolved (unless the Seller is consolidated or merged);

(ii) The Seller is incapable of settling debts due;

(iv) The Seller is transferred to or entirely merged with creditor’s company or merged for benefits of the creditor;

(v) The court issues decision on initiation of bankruptcy procedures for the Seller.

b) The Seller violates obligations under this Agreement and fails to rectify said violation within 90 days from the date on which the Buyer issues a notice on said violation;

c) The Seller is suspended under decision of competent authority.

2. Events affecting the Seller’s ability to execute the Agreement

a) Events relating to dissolution, bankruptcy of the Buyer, including:

(i) The Buyer is dissolved (unless the Buyer is consolidated or merged);

(ii) The Buyer is incapable of settling debts due;

(iii) The Buyer is transferred to or entirely merged with creditor’s company or merged for benefits of the creditor;

(iv) The court issues decision on initiation of bankruptcy procedures for the Buyer.

b) The Buyer violates obligations under this Agreement and fails to rectify said violation within 90 days from the date on which the Seller issues a notice on said violation;

c) The Buyer is suspended under decision of competent authority.

3. Actions

a) Where events affecting a party’s ability to execute the Agreement, the affected party has the right to take actions defined under Article 10 hereof against the affecting party;

b) Actions defined under this Agreement do not cancel each other out and do not affect implementation of other actions.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 10. Termination

1. Bilateral termination

The parties have the right to negotiate in writing to reach an early termination of the Agreement. Where power plants participate in competitive electricity market in accordance with design of electricity market, the parties have the right to negotiate early termination of the agreement in accordance with documents of competent authority in order to sign PPA under new regulations.

2. Unilateral termination

a) Where an event affecting Agreement execution according to Point a and Point c of Clause 1; Point a and Point c Clause 2 Article 9 of this Agreement occurs and lasts to an extent that it affects a party to the Agreement, the affected party has the right to unilaterally terminate the Agreement after 90 days from the date on which they send a notice to the other party;

b) Where a force majeure occurs to a party and lasts at least 180 days, the other party has the right to unilaterally terminate the Agreement after 30 days from the date on which they send the notice;

c) Where an event affecting a party’s ability to execute the Agreement in accordance with Point b Clause 1 and Point b Clause 2 Article 9 hereof occurs, the affected party has the right to unilaterally terminate the Agreement after 30 days from the date on which they send the notice.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 11. Compensation

1. The defaulting party must compensate the non-defaulting party for losses, damage, and costs incurred by the non-defaulting party in the performance of their rights and obligations under the Agreement. Damage calculation shall conform to the Civil Code.

2. Where compensation request is filed, the compensated party must immediately notify the compensating party in writing to identify the nature of the subject of compensation. The compensated party's failure to send the notice in a timely fashion does not affect the compensating party’s obligation to pay compensation unless such failure cause the compensating party to incur damage.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 12. Exemption from liability for violations

1. The defaulting party is exempt from liabilities where:

a) An event eligible for liability exemption agreed upon by the parties occurs;

b) Violation of a party is caused entirely by the other party’s fault;

c) Violation of a party is committed as a result of compliance with decision of competent authority which is unbeknownst to both parties at the time of signing the Agreement;

d) A force majeure occurs

Force majeure means an event or situation that is inevitable, beyond the control of a party, causes obstruction or delay to the partial or total performance of obligation of the party even when legitimate measures have been taken and includes but is not limited to:

i) Decision of the court or competent authority negatively affects a party's ability to perform their obligation under the Agreement;

ii) Natural phenomena such as fire, explosion, drought, flood, volcanic eruption, earthquake, landslide, high tide, storm, tornado, typhoon, or similar events occur;

iii) Riot, strike, unrest, protest, conflicts, activities of declared or undeclared war, terrorism, destruction, embargo, quarantine, or similar events occur;

iv) Power plants or assets of the Seller are nationalized, removed of ownership, or confiscated under decision of competent authority;

v) The Seller is rejected from issuance of necessary licensing, approving documents by competent authority despite having complied with legal obligations relevant to the issuance of said licensing, approving documents.

2. Notification and verification of exemption from liability

a) The violating party must immediately notify the other party in writing regarding situations eligible for exemption from liability and potential consequences;

b) Where exemption from liability ends, the violating party must immediately notify the other party; failure to notify the non-violating party in a timely manner shall result in the violating party be required to pay damages;

c) The violating party must prove their eligibility for exemption from liability to the non-violating party.

3. Exemption from liability as a result of force majeure, refusal of Agreement execution in case of force majeure

a) The party that violates the Agreement as a result of force majeure is responsible for regularly providing reports on implementation of measures for rectifying the force majeure or other information at legitimate request of the non-violating party to the non-violating party to prove the process of force majeure; informing the other party about the time of termination of force majeure within 48 hours from the moment in which force majeure ceases unless communication is lost;

b) The party affected by the force majeure is only eligible for exemption from liability relating to their failure to fulfill Agreement obligations in a timely manner as a result of the force majeure after notifying and attempting to rectify in accordance with Point a of this Clause;

c) In the event of a force majeure, where a party is obstructed from perform Agreement obligations for at least 180 days, either party has the right to unilaterally terminate the Agreement in accordance with Point b Clause 2 Article 10 hereof.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 13. Dispute settlement

1. In case of dispute between parties to the Agreement, the disputing party must inform the other party about details of the dispute in writing. The parties are responsible for settling disputes via negotiation within 60 days from the date on which the disputing party sends the notice. In respect of disputes concerning fee payment, the parties must negotiate within 15 days. The parties have the right to discuss the extension of negotiation duration in writing.

2. Where the parties fail to settle dispute via negotiation within the time limit set forth under Clause 1 of this Article, the parties shall forward the dispute to …… or other authorities in charge of settling disputes chosen by the parties or either party shall file lawsuits in accordance with relevant law provisions.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 14. Electrical sector restructuring and transfer of rights and obligations

1. Electrical sector restructuring and transfer of rights and obligations at the Buyer

The parties shall negotiate the situations in which the Buyer must be restructured, reorganized, dissolved, or having electricity purchase capacity phased out for the purpose of implementing plans for remodeling electricity sector in all levels of competitive electricity market in accordance with roadmap approved by the Prime Minister or later amendments. Where competent authority issues decisions on reorganizing, restructuring, or dissolving, the Buyer has the right to partially or entirely transfer their rights and obligations under the Agreement without approval of the Seller to inheriting entity or entities decided by competent authority and such entities are responsible for executing legitimate rights and obligations of the Buyer as per the law.

The Seller must issue documents approving all transfer or authorizing implementation of rights and obligations under this Agreement of the Buyer.

2. Transfer of rights and obligations of the Seller

The Seller has the right to transfer their rights and obligations under the Agreement to inheriting entity or entities only when the Seller and the Buyer have agreed upon such transfer in writing in advance. Such written agreement must not deny the transfer or authorization of the Seller without reasons, unless the Seller is allowed to authorize or transfer any or all their rights and obligations under the Agreement pertaining to funding or other financial arrangement to Power plant without discussing with the Buyer. This Agreement remains effective to warrant benefits and the performance of obligations of inheriting entities, authorized entities, transferred entities of the Seller.

3. Transition phase of competitive electricity market

If competitive electricity market is replaced by a different market model according to decision of competent authority during effective period of the Agreement, the parties must negotiate to amend or replace this Agreement in order to adhere to the new market model as long as electricity generation prices for the parties do not change.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 15. Storing documents and providing information

1. Storing documents

The parties have the obligation to store documents, data, instruments, or necessary information to determine veracity of invoices, prices, or calculations under the Agreement or to determine whether the parties have adhered to the Agreement.

2. Providing information

Each party is responsible for providing data, documents, and necessary instruments within a reasonable extent to the other party in order to determine veracity of invoices, fees, or other calculations under the Agreement or to determine whether the parties have adhered to the Agreement.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 16. Other costs

Each party is responsible for incurring taxes and fees or debts that arise in the performance of the Agreement. The parties undertake that this Agreement does not include electricity transmission costs, electricity distribution costs, or other similar costs and each party is responsible for incurring these costs as per the law.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 17. Authorized representative and information exchange

1. Authorized representative

Authorized representatives of the Seller and the Buyer in the Agreement are:

The Seller:	The Buyer:
_____	_____
_____	_____

2. Information exchange

a) Notices, invoices, or other information exchange done in the performance of the Agreement must be recorded in writing and accompanied by date of recording and relevance to the Agreement. Where the delivery and receipt is made via fax, the original copies must be sent via post service where service fees have been paid in advance. Notices, invoices, or information exchange must be filed to:

The Seller: _____
_____

The Buyer: _____
_____

b) Notices, invoices, or information exchange sent via methods detailed under Point a of this Clause are deemed to be delivered and received:

(i) When the delivery is made in case of direct delivery;

(ii) When registered mail is signed in case of delivery via registered mail;

(iii) When the fax is received and the sender has verified that the transmission is not defective in case of delivery via fax;

(iv) When the authority issue documents confirming the receipt in case of delivery via regular mail.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 18. Confidentiality

Each party has the obligation to secure information and documents provided by the other party under the Agreement and refrain from disclosing or using such documents, information for purposes other than the performance of the party under the Agreement, except when:

1. The information and documents are disclosed or used as per the law.

2. The information and documents are provided to competent authority at their request.

3. The information and documents do not originate from parties to the Agreement.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

Article 19. Law applied and language of PPA

Presentation and implementation of this Agreement shall conform to Vietnam's laws.

Language in use in the PPA shall be Vietnamese. The parties may negotiate for addition of PPA in the English language.

Article 20. Other agreements

1. Agreement amendment

All amendments to the Agreement must be discussed and agreed by the parties in writing.

2. Final Agreement

This Agreement is the final agreement between the parties and replaces all discussion, communication, and exchanges that take place prior to the signing of this Agreement.

3. Third party

This Agreement only serves benefits of the Seller and the Buyer and does not create benefits or obligations of a third party.

4. Individual responsibility

This Agreement shall not be construed to create or give rise to any partnership or joint venture or impose obligation or responsibility pertaining to partnership or joint venture on either the Seller or Buyer. Neither party has the right to enter into agreement or represent the other party as an agent or representative to fulfill obligation to the other party.

5. Waive rights

A party's waiver of their rights according to the Agreement must be recorded in writing which must be signed by authorized representative of the party. A party's failure to exercise their rights in a timely manner must not be construed as waiver of such rights.

6. Remaining obligation

The cancellation, termination, or expiry of the Agreement does not constitute termination of remaining obligations of the parties under the Agreement.

7. Severability

Where a part of the Agreement does not adhere to the Law or is voided according to decision of competent authority, other parts of the Agreement remain effective so long as such parts are complete without the voided part.

[The parties have the right to negotiate amendment in accordance with Vietnamese laws]

This Agreement shall be executed in 9 counterparts of equal value, 4 of which shall be held by each party. The Buyer must send 1 counterpart to Electricity Regulatory Authority of Vietnam./.

BUYER'S REPRESENTATIVE	SELLER'S REPRESENTATIVE
(Title)	*(Title)*
(Seal and signature)	*(Seal and signature)*
(Full name)	*(Full name)*

Appendix I

PRIMARY PARAMETERS OF POWER PLANTS

(Attached to the Agreement No. ____ , dated ____)

Including descriptions, illustrations, and technical characteristics of Power plant

(Primary parameters of Power plant will be re-verified after signing contracts for procurement of

primary equipment of Power plant.)

Appendix II

METERING SYSTEM AND DATA COLLECTION

(Attached to the Agreement No. ____ , dated ____)

I. INSTALLATION LOCATION AND FUNCTION OF METERING SYSTEM

1. Installation location of metering system

2. Functions of metering system must conform to Circular on electricity metering of the Ministry of Industry and Trade.

II. TECHNICAL REQUIREMENTS OF METERING SYSTEM

Technical requirements of metering equipment, metering circuits, lead sealing measures, and meter data collection and reading system must conform to regulations on electricity metering published by the Ministry of Industry and Trade.

III. METERING LOCATION

The parties hereby agree to use the following metering locations:

Primary metering location:

Backup metering location 1:

Backup metering location 2:

Metering location serving electricity market operation and data reconciliation:

IV. METHODS FOR DETERMINING DELIVERED ELECTRICAL PRODUCTION

1. Delivered electrical production

a) Electrical production for which the Seller is paid in the month is calculated using formula:

A_G =

AG: Electrical production for which the Buyer pays the Seller in the month, (kWh).

b) Electrical production which the Seller receives from national electrical system in the month is calculated using formula:

A_N =

Where:

AN: Electrical production received from grid via metering points in the month (kWh).

2. During period of competitive electricity market, monthly delivery of electricity must conform to regulations on electricity metering in competitive electricity market promulgated by the Ministry of Industry and Trade.

Appendix III

AGREEMENT ON OPERATIONAL CHARACTERISTICS

(Attached to the Agreement No. ____ , dated ____)

Appendix IV

AGREEMENT ON SCADA/EMS, COMMUNICATION, PROTECTIVE RELAY AND AUTOMATED SYSTEMS

(Attached to the Agreement No. ____ , dated ____)

Appendix V

ELECTRICITY SALE AND PURCHASE PRICES, ELECTRICITY PAYMENT

(Attached to the Agreement No. ____ , dated ____)

I. ELECTRICITY GENERATION PRICES

1. PPA prices

PPA prices of power plants at the time of payment for electricity bill of month t, year j are $P_{C,j\,t}$ (VND/kWh) and are determined using formula below:

$$P_{C,j,t} = FC_j + FOMC_{j,t} + P_{j,t}^{BĐ}$$

Where:

FC_j; Means fixed costs of year j (VND/kWh);

$FOMC_{j,t}$: Means operating and maintenance costs of month t, year j (VND/kWh);

$P_{j,t}^{BĐ}$: Means variable costs of month t, year j (VND/kWh).

$P_{j,t}^{BĐ}$ of hydroelectricity, wind power, solar power plants equals 0.

1.1. Fixed costs:

Average fixed costs (not including VAT) are …… (VND/kWh);

Annual fixed costs FC_i (VND/kWh) from commercial operation date until expiry of economic life of power plant (not including VAT) conform to schedule below:

Year number	1	2	3	4	...	...
Fixed costs (VND/kWh)						

1.2. Operating and maintenance costs:

Operating and maintenance costs of month t and year j are determined using formula below:

$$FOMC_{j,t} = FOMC_j^{scl} + FOMC_{j,t}^{nc}$$

Where:

$FOMC_j^{scl}$: Means components of operating and maintenance costs depending on major repair costs and other costs in year j (VND/kWh);

$FOMC_{j,t}^{nc}$: Means components of operating and maintenance costs depending on personnel costs in month t and year j (VND/kWH).

a) Components of operating and maintenance costs depending on major repair costs and other costs of year j $FOMC_j^{scl}$ (VND/kWh) are determined using formula below:

$$FOMC_j^{scl} = FOMC_b^{scl} \times (1+i)^{l-1}$$

Where:

$FOMC_b^{scl}$: Means components of operating and maintenance costs depending on major repair costs and other costs in Base year of and is (VND/kWh);

i: Means inflation rate of components of operating and maintenance costs depending on major repair costs and other costs according to this Circular;

l: Means number of year of payment from Base year (with Base year l =1).

b) Components of operating and maintenance costs depending on personnel costs of month t and year j $FOMC_{j,t}^{nc}$ (VND/kWh) are determined using formula below:

- Where salaries included in calculation of electricity pricing equal regional minimum wages:

$$FOMC_{j,t}^{nc} = FOMC_b^{nc} \times \frac{L_{min,j,t}}{L_{min,b}}$$

Where:

$FOMC_b^{nc}$: Means components of operating and maintenance costs depending on personnel costs of Base year of …… (VND/kWh);

$L_{min,j,t}$: Means regional minimum wages at the time of payment of month t and year j (VND/month);

$L_{min,b}$: Means regional minimum wage of Base year of …… (VND/month).

- Where total personnel costs TC_{nc} are calculated based on percentage of investment in construction and equipment, components of operating and maintenance costs depending on personnel costs are determined using formula below (VND/kWh):

$$FOMC_{j,t}^{nc} = FOMC_{b}^{nc} \times \prod_{l=1}^{L}(1+i_l)$$

Where:

$FOMC_b^{nc}$: Means components of operating and maintenance costs depending on personnel costs of Base year (VND/kWh);

i_1: Means inflation rate of components of operating and maintenance costs depending on personnel costs determined by ratio of CPI of the year (j-1) to that of the year (j-2) published by the General Statistics Office of Vietnam in December of the year (j-1) and up to 2,5%/year;

l: Number of payment year since the Base year (with Base year l =1, i_1=0).

1.3. Variable costs:

Variable process of month t and year j $P_{j,t}^{BĐ}$ (VND/kWh) are determined using formula below:

$$P_{j,t}^{BĐ} = VC_{j,t}^{nlc} + VC_{j,t}^{nlp} + VC_{j}^{k} + P_{j,t}^{VC}$$

Where:

$VC_{j,t}^{nlc}$: Means components of variable costs depending on changes to primary fuel costs of power plant in month t, year j (VND/kWh);

$VC_{j,t}^{nlp}$: Means components of variable costs depending on changes to secondary fuel costs of power plant in month t, year j (VND/kWh);

VC_{j}^{k} : Means components of variable costs adjusted by other variations of power plants of year j (VND/kWh);

$P_{j,t}^{VC}$: Means transportation costs for primary fuel of power plant in month t, year j (VND/kWh).

a) Components of variable costs depending on changes of primary fuel costs:

Components of variable costs depending on changes to primary fuel costs of power plant in month t year j $VC_{j,t}^{nlc}$ (VND/kWh) are determined using formula below:

$$VC_{j,t}^{nlc} = HR_{bq}^{nlc} \times k_{HR} \times P_{j,t}^{nlc} \times (1+(l-1)\times k_{HS})$$

Where:

HR_{bq}^{nlc} : Means average heat rate (HHV) of …… kcal/kWh or kJ/kWh or BTU/kWh;

$P_{j,t}^{nlc}$: means primary fuel costs of payment period calculated using weighted mean of quantity of invoices under PPA in the last …… months (not including VAT);

Where fuel transport prices cannot be separated in PPA, primary fuel prices of the payment period shall include primary fuel transport prices.

k_{HR}: Means adjustable factor for average net heat rate regarding actual operating conditions such as coolant temperature, ambient temperature, humidity, load negotiated by the parties or in actual operation from operation cycle to operation cycle;

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of commercial operation years which is rounded down from the commercial operation date of power plant.

b) Components of variable costs depending on changes to secondary fuel costs:

Components of variable costs depending on changes to secondary fuel costs of power plant in month t year j $VC_{j,t}^{nlp}$ (VND/kWh) are determined using formula below:

$$VC_{j,t}^{nlp} = VC_{b}^{nlp} \times (1+(l-1)\times k_{HS}) \times \frac{P_{j,t}^{nlp}}{P_{b}^{nlp}}$$

Where:

VC_b^{nlp} : Means components of variable costs depending on changes to secondary fuel costs of power plant in Base year of …… (VND/kWh);

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of commercial operation years which is rounded down from the commercial operation date of power plant;

$P_{j,t}^{nlp}$: Means secondary fuel costs for electricity generation including costs for transporting fuel to power plants at the time of payment of month t and year j …… (VND/kg);

P_b^{nlp} : Means secondary fuel costs for electricity generation in Base year of …… (VND/kg).

c) Components of variable costs depending on other variations:

Components of variable costs depending on other changes of power plant in year j VC_j^k (VND/kWh) are determined using formula below:

$$VC_j^k = VC_b^k \times (1+(l-1)\times k_{HS}) \times (1+i)^{m-1}$$

Where:

VC_b^k : Components of variable costs depending on other changes of power plants in Base year of … (VND/kWh);

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of commercial operation years of power plant (from commercial operation date of power plant where the first commercial operation year starting from the first commercial operation date of the first generator group, l = 1);

m: Number of payment year starting from the Base year (for the Base year m = 1);

i: Inflation rates of components of variable costs depending on other changes according to this Circular.

d) Transportation costs for primary fuel:

Transportation costs of primary fuel of power plant in month t of year j $P_{j,t}^{VC}$ (VND/kWh) are determined using formula below:

$$P_{j,t}^{VC} = HR_{bq}^{nlc} \times k_{HR} \times P_{j,t}^{v/c} \times (1+(l-1)\times k_{HS})$$

Where:

HR_{bq}^{nlc} : Means average heat rate (HHV) of …… kcal/kWh or kJ/kWh or BTU/kWh.

k_{HR}: Means adjustable factor for average net heat rate regarding actual operating conditions such as coolant temperature, ambient temperature, humidity, load negotiated by the parties or in actual operation from operation cycle to operation cycle;

k_{HS}: Means percentage of capacity reduction in year j (%);

l: Means number of year of commercial operation of power plants;

$P_{j,t}^{v/c}$: Means transportation costs for primary fuel at the time of payment of month t and year j calculated by weighted mean of quantity of invoices under fuel transport agreements and LNG storage agreements, gas regasification and distribution contracts (if any) (not including VAT), fuel transport costs in VND/kcal or VND/kJ or VND/BTU;

Where components of transport, LNG storage, gas regasification and distribution costs cannot be separated in fuel sale and purchase agreements, primary fuel costs shall include transportation costs for primary fuel. In this case, transportation costs for primary fuel equals 0.

Where primary fuel is not delivered to power plant in the payment month, transportation costs for primary fuel equal transportation costs for primary fuel of the latest …… month(s) where primary fuel delivery is made;

Select fuel providers, fuel transport service providers and enter into fuel supply and transport agreements in a manner compliant with Vietnam's laws and ensuring equality, competitiveness, and

transparency.

2. Specific prices:

Specific connection prices P^{DT} (not including VAT) are …… VND/kWh or VND/kW or VND/month.

Slag and ash treatment prices P^{TX} (not including VAT) are …… VND/kWh.

II. ELECTRICAL PRODUCTION UNDER AGREEMENT

1. Average electrical production in multiple years [at delivery points of power plan] within the term of the Agreement of the Power plant is … (million kWh).

2. Annual and monthly contractual production shall be verified and signed by the parties in accordance with regulation on competitive electricity market.

III. ELECTRICITY PAYMENT UNDER AGREEMENT

III.1. Before commercial operation date

In case of test run and commissioning costs before commercial operations: the parties shall negotiate in accordance with Article 4 of this Circular.

IIII.2. After commercial operation date

1. Where power plant has not participated in competitive electricity market or has indirectly participated in competitive electricity market with periods of non-participation according to decision of competent authority or market intervention:

Electricity payment (R_{tt}) of power plant is calculated as follows:

$$R_{tt} = R_t \times (1 + VAT)$$

Where:

R_t: Means electricity payment of month t and year j and does not include VAT (VND);

$$R_t = (P_{C,j,t} \times Q_{m,j,t} + R_k + R_{đt} + R_{Th})$$

$P_{C,j,t}$: Means PPA prices under Section I of this Appendix (VND/kWh);

$Q_{m,j,t}$: Means electrical production at delivery points of power plant (kWh);

R_k: Other costs (VND), including:

Costs paid for generator groups serving test depending on test schedule approved by System and market operators, determined by: (i) Electrical production measured from test generator group throughout duration of the test and (ii) Variable costs defined under Section I of this Appendix;

Adjustable payments (if any) (VND);

Other costs negotiated by the parties.

$R_{đt}$: Means total specific costs payable according the Agreement determined by specific connection prices (P^{DT}) and slag and ash treatment costs (P^{TX}) according to Section I of this Appendix (VND).

R_{Th}: Means total taxes, fees, amounts payable in the month in accordance with relevant law provisions agreed between the parties (and legitimate instruments) (VND);

VAT: Means value-added tax according to regulations of the Government (%).

Where the Power plant is subject to multiple Agreements between the Seller and the Buyers, amounts payable Rt (not including VAT) shall be determined and distributed by the Seller to the Buyers according to delivered electrical production in the month (billing cycle) published by System and market operator.

On an annual basis, the parties shall settle ash and slag handling costs in accordance with practical situations of the previous year.

2. Where Power plant has officially participated competitive electricity market

2.1. Difference in total amounts payable under Agreement in month t is determined using formula below:

$$R_{C_t} = \sum_{d=1}^{D} \sum_{i=1}^{I} (P_{C,j,t} - FMP_{d,i}) \times Q_{C_{d,i}}$$

Where:

R_{C_t} : Means difference in total amounts payable under Agreement in month t (VND) not including

VAT;

D: Means total number of days in month t;

d: Means number of trading days in month t;

l: Means total number of billing cycle of trading days d;

i: Means billing cycle i of trading days d;

$P_{C,j,t}$: Means PPA prices under Section I of this Appendix (VND/kWh);

$FMP_{d,i}$: Means full market price applied to Electric utility in billing cycle i, day d in month t (VND/kWh);

$Q_{C_{d,i}}$: Means contractual production in billing cycle i, day d in month t (kWh).

2.2. Total amounts payable under the Agreement include:

a) Interest of late payment according to Article 8 of the Agreement;

b) Variable amounts payable (if any);

c) Other costs negotiated by the parties.

2.3. Other amounts payable of Power plant [entering into PPA with the Buyer] are determined as follows:

a) Difference in electrical production between electrical production measured in the month and electrical production measured in billing cycles in the month according to regulation on competitive electricity market conforms to rate defined under PPA $P_{C,i,t}$ defined under Section I of this Appendix;

b) Where thermal power generator groups or 1 boiler must be suspended to reduce capacity in accordance with regulation on competitive electricity market:

Amounts payable in this case equal total activation costs corresponding to activation states.

Activation costs corresponding to activation costs are negotiated by the parties from ingredients, auxiliary materials, etc. as follows [……].

c) Where Power plant contains test generator groups appropriate to test schedule approved by System and market operator, amounts payable for electrical production produced by Power plant according to regulation on competitive electricity production are determined as follows:

- Test generator groups: Using variable costs under Section I Appendix V of the Agreement;

- Non-test generator groups: Using PPA prices under Section I Appendix V of the Agreement.

d) Where Power plant contains generator groups participating in approved AGC test or other test at request of System and market operator: Amounts payable corresponding to electrical production according to regulation on competitive electricity market are determined by PPA prices under Section I Appendix V of the Agreement;

dd) Other amounts payable according to regulation on competitive electricity market.

Other amounts payable according to regulation competitive electricity market under section 2.3 are allocated to the Buyers by the Seller depending on electrical production delivered in the month (billing cycle) published by the System and market operator.

2.4. Total specific costs payable according the Agreement are determined by specific connection prices (P^{DT}) and slag and ash treatment costs (P^{TX}) according to Section I of this Appendix (VND).

Total specific costs pay able under section 2.4 are calculated and allocated to the Buyers by the Seller depending on proportion of electrical production delivered in the month (billing cycle) published by the System and market operator.

2.5. Monthly electricity payment is determined by:

$$R_{tt} = (R_{TT,t} + R_{C,t} + R_{C,k,HD} + R_{C,k,TT} + R_{dt} + R_{Th}) \times (1+VAT)$$

Where:

$R_{TT,t}$: Means total market payment according to monthly payment schedule provided by System and market operator (VND);

$R_{C,t}$: Means total difference in electricity payment under Agreement in month t (VND) determined by Clause 2.1 of this Section (VND);

$R_{C,k,HD}$: Means total other amounts payable according to the Agreement (VND) determined by Clause 2.2 of this Section;

$R_{C,k,TT}$: Means total other electricity payments according to regulations on competitive electricity market (VND) determined by Clause 2.3 of this Section;

Rdt: Means total specific costs payable in the month according to the Agreement determined by Clause 2.4 of this Section (VND);

R_{Th}: Means total taxes, fees, and amounts payable in the month in accordance with relevant law provisions calculated and allocated to the Buyers by the Seller depending on proportion of electrical production delivered in the month (legitimate instruments attached) (VND);

VAT: Means value-added tax determined by regulations of the Government (%).

On an annual basis, the parties shall settle ash and slag handling costs in accordance with practical situations of the previous year.

2.6. Difference in FED rates: On an annual basis, depending on total loans in foreign currency, repayment plan for loans in foreign currency, actual principal repaid, conversion rate agreed by the parties in electricity generation pricing, and conversion rate of the previous year, the parties shall calculate the difference in conversion rates.

Difference in FED rates (VND) is calculated using the formula below:

$$FED = \sum_{i=1}^{m}\sum_{j=1}^{n} D_{i,j} \times (\lambda_{i,j} - \lambda_{i,b}) \times (1+VAT)$$

Where:

m: Means number of foreign currency types in electricity generation pricing agreed upon by the parties (type);

n: Means number of principal installments of foreign currency i (installment);

$D_{i,j}$: Means number of principal loan in foreign currency i paid in installment j in year of calculation;

$\lambda_{i,j}$: Means conversion rate in installment j of foreign currency i in the year (.../VND);

$\lambda_{i,b}$: Means conversion rate of foreign currency i agreed upon by the parties in electricity generation pricing (.../VND);

VAT: Means value-added tax determined by regulations of the Government (%).

Appendix VI

PRIMARY PARAMETERS IN CALCULATION OF ELECTRICITY GENERATION PRICES

(Attached to the Agreement No. ____ , dated ____)

Appendix VII

PROJECT SCHEDULE

(Attached to the Agreement No. ____ , dated ____)

I. PROJECT SCHEDULE

1. Official construction commencement date of Power plant: [...]
2. Initial date of interconnect test: [...]
3. Date of initial circuit closing: [...]
4. Date of test: [...]
5. Commercial operation date of generator group i: [...]
6. Commercial operation date of Power plant: [...]

II. DOCUMENTS PROVIDED TO THE BUYER BY THE SELLER

The Seller must provide legitimate copies of the following documents to the Buyer to acknowledge commercial operation date: …