

**TERMS OF REFERENCE**  
**Procurement of Ancillary Services through Competitive Selection Process**  
**Updated - August 2022**



The NGCP sets the following Terms of Reference for the interested bidders for the provision of Ancillary Services. These terms will also form part of the Ancillary Services Procurement Agreement (ASPA).

TERMS OF REFERENCE	DESCRIPTION	REQUIREMENTS
Type of Contract and Duration	Firm Contract	<p>Firm Contract for five (5) years, with Annual Performance Evaluation in which contract may be terminated if the AS Provider's performance for the year did not meet reliability standard. The details of the reliability standard shall be specified in the ASPA.</p> <p>Contract duration is not intended to be extended, as another bidding will be conducted for expiring contracts.</p>
Power Plant Location	Luzon Grid Visayas Grid Mindanao Grid	<p>1. Power plant that is directly connected to an NGCP-owned Facility should have a dedicated connection for the Generating Unit used to provide the Contracted Capacity; or</p> <p>2. For Embedded Generators, with expressed consent from Host DU that Embedded Generator can dispatch anytime when required for AS provision.</p> <p>The Generating Unit/s capacity offered for specified schedule/duration should be dedicated for AS, and not be contracted for regular energy supply to load customers or used for station use service.</p>
Required Certifications	Valid certifications which must be submitted by Eligible Bidders before the deadline for submission of Post-Qualification requirements:	
	ERC-issued certification	Provisional or Final Certificate of Compliance (COC) as an Independent Power Producer (IPP), or an ERC-issued certification that the same is in process.
	IEMOP issued certification	Per-unit or Per-sector WESM registration, consistent with AS Certification. Aggregated units/sectors will not be accepted.
	NGCP-issued certification	Valid Ancillary Service Certification indicating the AS types the plant is qualified to provide per Unit/per Sector
Grid interface and control requirements	Equipment required to be installed at the AS Provider's power plant and connection point	<p>1. Control Mode for Regulating Reserve shall be Automatic Generation Control (AGC), and capable also to run on Governor Control Mode (GCM), if required.</p> <p>2. Control Mode for Contingency Reserve shall be GCM; AGC mode is also acceptable, if certified.</p>
		WESM-compliant Revenue Metering <u>consistent with WESM Registration</u> - without any connected Load customer or Station Use load.
		Remote Terminal Unit (RTU)- capable of per unit/per sector monitoring

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Contracted Capacity	<p>Open for bidding from multiple AS Providers in Luzon, Visayas and Mindanao grids to comply with the following AS requirements:</p> <table border="1"> <thead> <tr> <th>AS Type</th> <th>Approved Level</th> </tr> </thead> <tbody> <tr> <td>1. Regulating Reserve</td> <td>4% of the hourly System Peak Demand and any such qualified regulating reserve capacity required to mitigate any frequency variability in the grid, as may be deemed necessary by NGCP</td> </tr> <tr> <td>2. Contingency Reserve</td> <td>The most heavily loaded generating unit on-line and its scheduled reserve</td> </tr> <tr> <td>3. Dispatchable Reserve</td> <td>The second most heavily loaded generating unit on-line and its scheduled reserve</td> </tr> <tr> <td>4. Reactive Power Support</td> <td>Dependent on system voltage condition</td> </tr> <tr> <td>5. Black Start Service</td> <td>At least two (2) black start plant per restoration highway</td> </tr> </tbody> </table> <p>Offer shall be identified per Unit/per Sector and presented in an hourly profile which already considers the scheduled outage hours of the plant. There will be no more allocation for outage hours allowance.</p> <p>Detailed hourly profile for the RR, CR, and DR requirements are included in the Bidding Documents to be provided to Eligible Bidders.</p> <p>For Regulating Reserve offer from BESS facilities, the resource capacity will be used and not the installed capacity.</p>	AS Type	Approved Level	1. Regulating Reserve	4% of the hourly System Peak Demand and any such qualified regulating reserve capacity required to mitigate any frequency variability in the grid, as may be deemed necessary by NGCP	2. Contingency Reserve	The most heavily loaded generating unit on-line and its scheduled reserve	3. Dispatchable Reserve	The second most heavily loaded generating unit on-line and its scheduled reserve	4. Reactive Power Support	Dependent on system voltage condition	5. Black Start Service	At least two (2) black start plant per restoration highway	
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Replacement AS Capacity	AS Provider to source and provide replacement AS capacity for Firm Regulating Reserve, Firm Contingency Reserve, and Firm Dispatchable Reserve, (whether unavailable or derated), to avoid penalties.	<p>Firm AS capacity shall be available and maintained at the scheduled capacity level at all times. Unavailability, unit tripping, or deration shall be replaced with AS capacity from AS certified Units that are not scheduled for AS, coming from the AS Provider's facility or another AS-certified generating facility of the same AS type.</p> <p>Upon implementation of Reserve Market (RM), replacement capacity may be procured by AS Provider from the RM, and cost difference to be shouldered by AS Provider. Non-replacement shall result to non-compliance, and will be subject to penalty.</p> <p>NGCP shall pay the amount of Replacement AS cost based on the rates in the ASPA, or the actual cost of Replacement AS Capacity, whichever is lower. Any resulting additional cost from Replacement AS Capacity shall be shouldered by the AS Provider, and shall not be passed on for recovery from NGCP.</p> <p>Absence of a Replacement AS capacity will subject the affected hours to penalties. There will no longer be an allocation for Outage Hours Allowance for Firm AS Capacity.</p>												
Deration of AS Capacity	Deration will be subject to penalties	Derated capacity that is not replaced with a Replacement AS capacity shall be subject to non-payment and penalty; compliant available capacity to be paid accordingly												

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AS Scheduling	Day-ahead nomination by AS Provider and scheduling by NGCP	<p>1. Nomination by the AS Provider of available capacity should be submitted to NGCP - System Operations day-ahead not later than 2:00 pm, based on available generating units, as provided below:</p> <ul style="list-style-type: none"> <li>-Weekdays, except Fridays, for the next weekday nomination.</li> <li>-Friday for Saturday, Sunday and Monday nominations.</li> <li>-Working Day before Holiday until the next working day</li> </ul> <p>2. Submission by NGCP of Day-Ahead Ancillary Services Schedule (DAASS) to the AS Provider shall be made not later than 5:00 pm.</p> <p>3. All day-ahead nominations of available capacity and approvals shall be made electronically thru web facility provided by System Operations-NGCP. In case web facility is not available, email shall be used.</p>
Basis of Payment	Payment by NGCP for actual provision of AS by AS Provider	<p>Payment by NGCP to the AS Provider shall be based on <u>Scheduled Capacity</u> and its corresponding dispatched energy for compliant hours only. Capacity and Energy costs for Non-compliant hour(s) shall not be paid, and shall be subject to applicable penalties.</p> <p>Further, payments by NGCP to the AS Provider shall be based on the actual collection from grid customers, on a pro-rated basis among all AS Providers.</p>
Penalty	Penalty of AS Provider for Non-compliance to technical criteria, or not following the dispatch instructions of NGCP.	<p>Non-compliant hours shall also have a penalty of 50% of the Applicable Rate for Capacity Payment multiplied by the Scheduled Capacity on said hour(s).</p> <p>E.g.  Scheduled Capacity = 10MW  Applicable Rate = 2.25 PhP/kW/hrhr  Non-compliant hour = 1 hr  <b>Penalty = 10,000kW x 2.25PhP/kW per hr x 1hr x 50% = 11,250 PhP</b></p>
Ancillary Service Rates and Payment	(A) Capacity Payment for Scheduled Capacity	<p>Rate in PhP/kW per hour, maximum. A lower rate may be proposed by the applicant.</p> <p>Regulating Reserve: PhP 2.25/kW per scheduled hour  Contingency Reserve: PhP1.50/kW per scheduled hour  Dispatchable reserve: PhP 0.85/kW per scheduled hour  Reactive Power Support: PhP 4.00/kVAR per hour, per occurrence  Black Start Service: Incidental Energy Payment only, per occurrence</p>

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	<p>(B) Incidental Energy Payment for Dispatched portion of the Scheduled Capacity, with the following components:</p>	<p>Note that Incidental Energy Payment for Regulating Reserve and Contingency Reserve does not include the energy dispatch from the generating unit's technical Pmin, Real-Time Dispatch (RTD) in the WESM, or its Bilateral Contract Quantity (BCQ). Further, start-up and shutdown done outside of the scheduled hour will not be considered in the payment of Incidental Energy.</p> <p>The formula for Incidental Energy Payment shall be:</p> <p>Incidental Energy Payment = [G x (Capacity Payment Rate + Variable Costs)] - (WESM Revenue - WESM Payment)</p> <p>Where:</p> <ul style="list-style-type: none"> <li>• G = for conventional plants, summation of actual energy generated or dispatched from the Scheduled Capacity, in kWh; for BESS, sum of the absolute value of the actual energy dispatched and absolute value of the actual energy absorbed, in kWh</li> <li>• Variable Costs, in PhP/kWh = Fuel Cost and Variable O&amp;M Cost, in PhP/kWh</li> <li>• Fuel Cost, in PhP/kWh = lower of (i) actual fuel cost; and (ii) Fuel Cost Cap</li> </ul> <p>Fuel Cost Cap = Initial Fuel Cost Cap x (Fuel index which is computed as Prevailing Fuel Price ÷ Base Fuel Price)</p> <p>Initial Fuel Cost Cap = fuel cost in Php/kWh as declared during the bid submission, to be adopted in the ASPA and used as basis for AS Cost Simulation.</p> <p>Prevailing Fuel Price = prevailing price of relevant fuel index based on published data</p> <p>Base Fuel Price = price of relevant fuel index based on published data at the start of the ASPA implementation. This will remain constant throughout the duration of the ASPA</p> <ul style="list-style-type: none"> <li>• Variable O&amp;M Cost, in PhP/kWh = VOM rate x (Current CPI ÷ Base CPI); VOM rate shall be adopted in the ASPA and shall be constant throughout the duration of the ASPA</li> <li>• WESM Revenue = summation of WESM revenue based on market clearing price at the generator's trading node, arising from G.</li> <li>• WESM Payment = summation of WESM purchases based on market clearing price at the generator's trading node, for generator's feedback power if applicable. For Mindanao-based plants, WESM Payment will be replaced with Bilateral Contract payment, if applicable.</li> </ul>

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Total AS Cost	Computation of the cost of actual AS provided	<p>Hourly AS Cost = [(Undispatched Capacity x A) + B] – Penalty + any billing adjustments</p> <p>Where:            Penalty = 50% x (A x Scheduled Capacity)            Billing adjustments = applicable adjustments as a result of monthly billing reconciliation</p>
AS Cost Simulation	Simulated Total AS Cost in Pesos	<p>Provide a simulated Total AS Cost for each AS type, using the components provided in the Ancillary Services rates portion above, for the scenarios provided in the Template for AS Cost Simulation.</p> <p>Exclude cost of VAT in the meantime. Cost of technical Pmin for Regulating Reserve and Contingency Reserve are not included in the Total AS Cost.</p>
Basis of Termination of ASPA	<p>The ASPA shall be considered for termination upon the occurrence of any of the scenarios below:</p> <ol style="list-style-type: none"> <li>1. AS Provider's Annual Performance Evaluation indicates below 90% compliance, even after conducting Monthly Performance Evaluation with recommendations to improve performance;</li> <li>2. In cases of unavailability of Firm Contracted Capacity during or as a result of Force Majeure events for a period of fifteen (15) days or less, the AS Provider shall not be obligated to provide Replacement AS Capacity, and will not be penalized for unavailability. Accordingly, the AS Provider shall not be paid for the period of unavailability.</li> </ol> <p>Starting on the sixteenth (16<sup>th</sup>) day of unavailability, AS Provider shall provide Replacement AS capacity if its generating unit is still unavailable. By the ninetieth (90<sup>th</sup>) day of unavailability, if generating unit is still unavailable, the ASPA shall be subject to termination.</p> <ol style="list-style-type: none"> <li>3. AS Providers whose generating unit undergoes outage for a period of not more than thirty (30) days shall be required to provide Replacement AS capacity during the entire duration of the outage. Otherwise, the APSA shall be considered for termination.</li> </ol> <p>Outages which exceed thirty (30) days, shall subject the ASPA to termination..</p> <ol style="list-style-type: none"> <li>4. Power plant fails the regular AS Certification test (conducted every 2 years) and cannot resolve the technical problem for re-certification within thirty (30) days from the issuance of the test report;</li> <li>5. Persistent occurrences of power plant tripping / non-compliances during the period it is scheduled for AS provision, which will reflect in the Annual and Monthly Performance Evaluation;</li> <li>6. Material adverse change in the Terms of Reference and the ASPA due to changes in law, rules and regulation, and/or significant modification of the ASPA by the ERC in its Provisional Authority to implement or Final Decision;</li> <li>7. Termination of Connection Agreement and Service Agreements with NGCP.</li> </ol>	
Bid Participation Fee	There shall be no bid participation fee, nor bid documents fee for this bidding.	
Bid Security	<p>Eligible Bidders shall post Bid Security upon submission of bids, equivalent to two percent (2%) of the total computed Capacity Payment Cost for one (1) year, for the offered AS Capacity per AS type (equivalent contract price). Should an offer consist of varying AS Capacity offers, the maximum capacity offered and the total number of hours offered in a year will be the basis for the Bid Security computation.</p> <p>A separate Bid Security shall be posted for each AS type offered.</p> <ol style="list-style-type: none"> <li>1. Computation of Bid Security for Regulating Reserve (RR), Contingency Reserve (CR), and Dispatchable Reserve (DR)</li> </ol>	

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	<p>For example, an offer of 20MW RR for 16 hours and 15MW for 8 hours, 320 days in a year at PhP 2.25/kW per hour, take the highest capacity offer of 20MW, which will result to a Bid Security of: <math>20,000\text{kW} \times 24\text{hrs} \times 320\text{days} \times 2.25\text{PhP/kw per hr} \times 2\% = \text{PhP}6,912,000.00</math>.</p> <p>2. Computation of Bid Security for Black Start Service (BSS)</p> <p>BSS capacity as certified (kW) x 12hrs x BSS rate (PHP/kWh) x 2%. The assumption is the BSS will be utilized once a year for 12 hours.</p> <p>3. Computation of Bid Security for Reactive Power Support (RPS)</p> <p>The maximum RPS kVAR as certified (kVAR) x 5hrs x 5months x 4.00/kVAR per hr x 2%. The assumption is the RPS will be utilized for 5 hours a day for 5 months (dry season) per year.</p> <p>Bid Security shall be in the form of security bond or irrevocable standby letter of credit from NGCP's list of approved providers. The Bid Security shall be (i) forfeited in favor of NGCP if the Eligible Bidder withdraws its bid after the bid opening, fails to complete Post-Qualification Requirements, or refuses to execute the ASPA after it has been provided a Notice of Award; and (ii) valid for 120 days starting on the date of bid submission.</p>	
Performance Bond	<p>Winning Bidders shall post a Performance Bond upon execution of the ASPA equivalent to 30% of the total computed Capacity Payment Cost for one (1) year based on the Firm Contracted Capacity, for the offered AS Capacity per AS type (equivalent contract price). The Performance Bond shall be updated annually, thirty (30) days prior to the anniversary date, and computed as follows.</p> <p>i. Computation of Performance Bond for RR, CR, and DR</p> <p>For example, 20MW RR for 24hours, 320 days in a year at PhP 2.25/kW per hour, will result to a Performance Bond of: <math>20,000\text{kW} \times 24\text{hrs} \times 320\text{days} \times 2.25\text{PhP/kw per hr} \times 30\% = \text{PhP} 103,680,000.00</math>.</p> <p>ii. Computation of Performance Bond for BSS</p> <p>BSS capacity as certified (kW) x 12hrs x BSS rate (PHP/kWh) x 30%. The assumption is the BSS will be utilized once a year for 12 hours.</p> <p>iii. Computation of Performance Bond for RPS</p> <p>RPS kVAR as certified (kVAR) x 5hrs x 5months x 4.00/kVAR per hr x 30%. The assumption is the RPS will be utilized for 5 hours a day for 5 months (dry season).</p> <p>Performance Bond shall be (i) in the form of security bond or irrevocable standby letter of credit from NGCP's list of approved providers, and (ii) subject to withdrawal in favor of NGCP upon termination of the ASPA due to default of the AS Provider (Winning Bidder), to be posted upon the execution of the ASPA.</p>	