

**ANNEX A**

*Response to Stakeholder's Comments to the Proposed Interim Reliability Performance Indices and Equivalent Outage Days per year of generating units.*

<b>Item No.</b>	<b>Company</b>	<b>Title</b>	<b>Discussion of Comment/s and/or Questions for Clarification</b>	<b>Suggestions / Proposed Change(s) to the Draft Determination</b>	<b>ERC Comment</b>
<b>1</b>	SN Aboitiz Power	General Comment	For clarification, are the indices in NERC-GADS which were compared to the GRMS generated indices also weighted?	For Clarification. To ensure apples to apples comparison.	NERC-GADS indices that were compared with the GRMS indices are weighted average indices.
<b>2</b>	Aboitiz Power	General Comments	<p>From the draft's own calculations, it was determined that our power plants are generally above the NERC standards for reliability. With this, the issue on load drops may not truly be attributable to reliability of our gencos. Imposing additional burden on gencos may affect supply and competition in the power sector.</p> <p>We recommend that the Honorable Commission instead incentivize the gencos to achieve the highest reliability, through awards.</p> <p>Also, the Competitive Selection Process (CSP) already provides an avenue to contract with the most efficient and reliable power plants. The Terms of Reference may specify the outages that DUs are willing to consider.</p>		<p>The Commission will retain the 50<sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p> <p>The NERC standards for reliability were developed using another jurisdiction's power sector features. The country's situation is different. Therefore, standards/indices that need to be</p>

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					put in place should be based on local realities and conditions.
<b>3</b>	Global Business Power Corporation	General Comment on necessity for the RPI Standard	Generators lose revenue during outages. It is therefore in the interest of Generators to minimize outages as much as possible because this has a negative impact on their revenue. There is no incentive to increase the number of outage days in a year. In a manner of speaking, Generators already self-regulate their outage days.	<p>We respectfully suggest that Generators be left to self-regulate their own outage days because the loss in revenue already serves as a disincentive for them to increase the outage days.</p> <p>Considering loss of revenue during outages, generators are always keen on productivity supplying power to the grid.</p>	<p>The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.</p> <p>The comment raised actually supports the intention of the interim standards being proposed. If power plants are programmed to and will meet its commitments under the PSA, then the interim standards should not pose any burden in the power plant.</p> <p>Setting of allowable outage is also necessary especially for PSAs wherein said allowance could affect the generation rates as the same are used in the calculation of the billing determinants.</p> <p>Setting allowable outage days sets</p>

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					clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.
<b>4</b>	Global Business Power Corporation	Major Overhaul (MOH)	The draft regulations do not distinguish between preventive maintenance schedule (PMS) year and MOH year. We respectfully submit that there should be additional days for MOH year based on technical specification of each plant. This should be plant based since MOH differs from one type of facility to another.	We respectfully suggest that for MOH year, there should be additional outage allowance days per facility since this is based on technical specification of each plant.  This may be based on statements from the technical provider (manufacturer/EPC) of the plant based on specifications.	ERC to consider the inclusion of Outage days for Major Overhaul (every 5 years)
<b>5</b>	Global Business Power Corporation	System Operator Actions	Instructions of the System Operator including automatic grid protection mechanisms should be excluded from the RPI calculation.	Instructions of the System Operator shall be exempted in the calculation of Reliability Performance Index. This should include measures including System Integrity Protection Scheme, automatic response of generators during under	The computed Indices do not include Outside Management Control Outage.  Thus, any outage that is beyond the control of the generating unit will not be included in computation of the generating

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				frequency and over-frequency, unavailability due to system black-out and other similar occurrences.	units' Unplanned Outage.
<b>6</b>	KEPCO SPC	Notice promulgated dated July 18, 2019	We understand the concern of the ERC and appreciate the initiative of this proposal to prevent power shortage in the country, particularly in Luzon Grid. Also, we recognize the effort of the Commission to hear our comments and suggestions with regard to this proposal	However, we suggest that instead of pure soliciting comments and suggestions individually from each Generating Unit, it is best, in our humble opinion, for ERC to host and conduct a meeting with Generators and other concerned bodies to have a dynamic and more comprehensive approach about this case.	The Commission will post the proposed interim standards twice in the ERC website to give stakeholder sufficient time and venue to submit their comments before coming up with the final interim benchmark.
<b>7</b>	KEPCO SPC	Planned Outage	Our other main concern is the inclusion of the Planned Outages. We are afraid that this, instead of serving its purpose which is to mitigate power shortages, might create more problems. This might result in the unexpected upsurge of unplanned/forced outages, which we believe is more difficult to handle, both by the power plant and ERC; and	Planned outages be not limited and regulated since Power Generators are also doing its best to have the least days for its maintenance means loss of income for the power generators. Nonetheless, power plants need to follow specific overhaul schedule and other maintenance programs from the manufacturer	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.  The comment raised actually supports the intention of the interim standards being proposed.

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			<p>at the same time, could possibly have more adverse effects to the community which we are serving due to the following reasons:</p> <p>A) Each Overhaul Schedule is performed to ensure a reliable, long term and safe operation of the Power Plant. Maintenance of all equipment are conducted by knowledgeable, trained and experienced personnel who follows the good operating procedures according to applicable laws and within the manufacturer's guidelines and specifications that were designed to mitigate or lessen likelihood of equipment failures and disturbances and finally meet the Power Plant's needs under normal operating condition and prolong its lifespan</p> <p>B) If the overhaul work items will be compressed in order to comply with the proposed outage, the Maintenance Personnel, who have knowledge of the assigned tasks, may not be able to</p>	<p>based on its design</p> <p>ERC may limit the implementation of this proposal to Luzon Grid since Visayas Grid has a harmonized schedule of Planned Outages among generators.</p> <p>Power Generators have a quarterly meeting with NGCP to monitor the harmonized planned outages within the Visayas Grid and make sure that there will be no power shortage in the Grid</p>	<p>If power plants are programmed to and will meet its commitments under the PSA, then the interim standards should not pose any burden in the power plant</p> <p>Setting of allowable outage is also necessary especially for PSAs wherein said allowance could affect the generation rates as the same are used in the calculation of the billing determinants.</p> <p>Setting allowable outage days sets clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.</p> <p>If the ERC will authorize a higher no. of allowable outage days, the billing determinant decreases resulting to a higher rate and, therefore, the consumers will have to pay for the capital even for those</p>

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			<p>maximize the productivity and efficiency of the maintenance work</p> <p>C) If maintenance days are reduced not all equipment will be addressed since some equipment needs plant shutdown in order to be repaired. And some of the equipment which are/were not properly maintained/repared may result to unit deratings or unplanned outages. Therefore, we need more than 10 days to cater all equipment included in the overhaul works.</p> <p>Normally, during overhaul we have the following durations:</p> <ul style="list-style-type: none"> <li>i. Minor Overhaul or Class “C” – 20 days</li> <li>ii. Intermediate Overhaul or Class”B” – 30 days</li> <li>iii. Major Overhaul or Clas “A” – 40 days</li> </ul> <p>D) Furthermore, for there are some tests required by Company Insurance</p>		<p>days that the generating plant is not operating because those outage days have been allowed.</p>

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			<p>to be performed as recommended by Manufacturers on set of intervals of years. Most of the time, these kinds of tests are conducted during the PMS schedule. If the PMS will be shortened, we will forced to have more forced/unplanned shutdowns just to be able to perform the required tests and satisfy the insurances.</p> <p>E) Because of proper maintenance we were able to increase the overhaul intervals from 8 months to 9 months now. We are afraid that if the maintenance will not be efficient due to reduced planned outage days, this will have a negative effect of the overhaul intervals and will force us back to shorter one.</p> <p>F) As a reference for Pulverized Coal in Vietnam, the Generation Performance standard for Availability is 90% and the allowable number of outage hours in the year for Forced Outages – 750 hours in most years and 1300 hours in a year with major</p>		

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			<p>overhaul</p> <p>For CFBC Plants in Botswana, Africa, the power stations were designed to achieve a minimum availability of 85%.</p>		
<b>8</b>	KEPCO SPC	Unplanned Outage	<p>We understand the wisdom behind this proposal and concur that this be applied to the unplanned outages in order to encourage and motivate Power Generators to perform better by reducing its unplanned/forced outages. This will also reassure the public of the Commission and the Power Generators being true to its commitment.</p>	<p>We are open for limitation of unplanned outages; however, the 50<sup>th</sup> percentile is not technically workable. We would like to suggest if ERC may use averaging method in determining the allowance and group the generators according to:</p> <ul style="list-style-type: none"> <li>- Size and Capacity</li> <li>- Age</li> <li>- Technology and Design</li> </ul> <p>And other relevant factors that may affect the Power Plant's Outage as a whole before deciding and finalizing the Outage Allowance.</p> <p>If possible, ERC may also show calculations on other methods so we can compare and give</p>	<p>The Commission will retain the 50<sup>th</sup> percentile interim standard as this was reached after a study of performance of generating plants over the immediately past 4-year. There is basis in this interim standard.</p> <p>What the ERC proposed at 50<sup>th</sup> Percentile for Pulverized Coal is 18.7 days for planned outage and 15.3 days for unplanned outage. This is a more conservative standard than the allowance set by the Electricity Generating Authority of Thailand (EGAT) which is 13.8 days and 8.4 days of planned and unplanned outage per year (CY 2013-2017).</p>



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				comments too.	
<b>9</b>	KEPCO SPC	Effects on PSA	We are also concerned with regard to its application on PSAs. The proposal is silent whether if this will be applied retroactively or prospectively	We suggest having a prospective application for this matter and hopefully this will not affect the existing obligations on prevailing PSAs. Also, we suggest that the Commission be more specific on its plan on when to implement the proposal	The Commission is considering the prospective application of the rules from its promulgation. The effectivity of the rules upon promulgation is already set in the Rules of Practice and Procedures (RPP) of the ERC.
<b>10</b>	KEPCO SPC	Penalty	We understand that the Commission will issue a separate guidelines/resolution/proposal for the penalties in relation to violations of this proposal	We recommend that the penalties be included in this proposal so Power Generators will just refer to one document with regard to Limitation of Outages, both for planned and unplanned.	In case of non-compliance by any person or entity with any of the provisions of these Rules, the ERC shall review such non-compliance and may issue a Notice of non-compliance with an Order to comply and to explain within seven (7) days the reason or reasons therefor. After the Notice and Order shall have been issued by the ERC and the person or entity still refuses and fails to comply within the reglementary period of what is incumbent upon it/him, the ERC shall impose fines and penalties pursuant to ERC Resolution NO.3,

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					Series of 2009.
<b>11</b>	KEPCO SPC	Carry-over of Outage days	<p>Utilizing the unused planned and unplanned outage allowance to the power plants so they can use it next time when they will be needing it is a prudent and economical motivation the Commission can provide to power plants.</p> <p>Or, if possible, ERC will provide additional outage allowance every after 3-5 years so power plants can perform the overhaul works.</p>	<p>We humbly recommend a provision in the proposal with the effect of carry-over for unused planned or unplanned outage days to motivate power plants to be better.</p> <p>i.e. if the Outage Allowance will be 40 days, and the actual outage for 1 year is only 35 days, we recommend to carry over the remaining 5 days on the next years so that they can we can conduct longer overhauls and will serve as an encouragement so that we will have more outage allowance.</p>	Since the reliability factors are determined on an annual basis, carry-over of outage allowance is not encouraged, and therefore, not allowed. The outage allowance is intended to be applied on an annual basis.
<b>12</b>	MERALCO	General Comment: Timeline for Implementation	Meralco notes that there is no public consultation scheduled in the Timeline for Implementation. Meralco recommends that a public consultation, where interested parties are allowed to participate and actively submit their inputs as regards the Proposed Interim Benchmark, be	For consideration of the Honorable Commission.	As part of due process being observed by the ERC in its rule making process, the stakeholders are given an opportunity to provide comments and inputs. The ERC has posted the proposed interim reliability performance indices and equivalent outage days per year in

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			considered in the Timeline for Implementation. Notably, during public consultation, other issues or concerns may be identified that will aid the Commission in drafting the Proposed Interim Benchmark.		its website to give stakeholder sufficient time and venue to submit their comments before coming up with the final interim reliability performance indices and equivalent outage days per year.  A second opportunity in the website will be carried out with the submitted comments and the response of the ERC to these comments for transparency. A pre-promulgation round table discussion is being planned.
<b>13</b>	PEMC	General Comments	There are plants or facility with more than one generating unit. How will the outage allowance be measured if a plant has, say, 5 units which have different outage schedules?		The indices are applicable for per unit basis, so as the outage days.
<b>14</b>	PEMC	General Comments	It was noticed that Biomass has a total of planned and unplanned outage allowance of 30.9 days (Table 13). <i>(Some biomass plants [e.g. those which uses sugarcane as resource], end the milling season at a certain period which would last up to 4-6</i>		The computed interim standard does not include Outside Management Control Outage. The latter is under consideration by the ERC.

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			months). In case the unplanned outages are beyond the control of the plant ( <i>e.g. force majeure or seasonality or resource</i> ), will the plant be allowed to apply for additional outage allowance?		
<b>15</b>	PEMC	General Comments	The data used in the calculation of the performance indices is from 2014-2018.  A regular review of these performance indices may be adopted after a specific period of time such as after 3 years or 5 years.		The interim standards of generating units will be reviewed regularly.
<b>16</b>	PEMC	General Comments	In addition to the outage duration, considerations on the timing of outages should also be looked into in so far as to its impact to the price clearing process in the WESM. Price sensitivity modelling may be explored to ascertain the seasonal optimality of outage.		The ERC is reviewing price caps and other mitigation measures for WESM. This is part of a comprehensive study being undertaken by the ERC.
<b>17</b>	PEMC	General Comments	Purpose of the Interim Guidelines is to, among others, "promote		In case of non-compliance by any person or entity with any of the provisions of these Rules, the ERC

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			<p><i>accountability of generation companies xxx".</i></p> <p>What is the effect of non-compliance with these interim guidelines?</p>		<p>shall review such non-compliance and may issue a Notice of non-compliance with an Order to comply and to explain within seven (7) days the reason or reasons therefor. After the Notice and Order shall have been issued by the ERC and the person or entity still refuses and fails to comply within the reglementary period of what is incumbent upon it/him, the ERC shall impose fines and penalties pursuant to ERC Resolution NO.3, Series of 2009.</p>
<b>18</b>	PEMC	General Comments	<p>Will there be specific penalty/sanctions for non-compliance? Will it consider the number of days in excess of the outage allowance?</p>		<p>In case of non-compliance by any person or entity with any of the provisions of these Rules, the ERC shall review such non-compliance and may issue a Notice of non-compliance with an Order to comply and to explain within seven (7) days the reason or reasons therefor. After the Notice and Order shall have been issued by the ERC and the person or entity still refuses and fails to comply within the reglementary</p>

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					period of what is incumbent upon it/him, the ERC shall impose fines and penalties pursuant to ERC Resolution NO.3, Series of 2009.
<b>19</b>	MERALCO	“Proposed <b>Interim Benchmark</b> xxx”	By the title, it is implied that the benchmark shall be applied provisionally or temporary. Will the benchmark be changed? If yes, will this be periodic? Or will there be triggers that will be identified to warrant the changes? Or will the Commission be issuing a “Final” benchmark?	For clarification.	The reliability performance indices of generating units will be reviewed regularly.
<b>20</b>	MERALCO	Minor Comment	(a) There is no Article I. The provisions start at Section 1.1. However, there are Articles II, III and IV; (b) There is no Section 2.4.		Comments duly noted and will be corrected accordingly.
<b>21</b>	PIPPA	Philippine generators have higher reliability than the NERC standards	As PIPPA has indicated in the most recent Senate Committee on Energy and Joint Congressional Power Commission (JCPC) hearings, the Philippine power plants are reliable based on NERC standards. We thank the Honorable Commission in finally	We propose that incentives instead be given to generators with highest reliability standards. This way, it will not be a barrier to entry, but supports higher than standard reliability of	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance

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			<p>confirming this fact, as per Table 11, Section 2.5 of the draft resolution.</p> <p>The table shows that only the GRMS of Oil-fired thermal is below the NERC standards, which is composed of the government-owned Malaya oil-fired units.</p> <p>The matter of generator reliability resulted from discussions during the recent April outages. During these outages, there were manual load dropping (MLDs) in several intervals. As previously emphasized, the April outages is an isolated incident, due to several factors such as: effects of el niño, high increase in demand, election period, and the forced outage of several baseload power plants.</p> <p>It is important also to note that MLD may be traced to other factors and not just on poor reliability. MLD may be the effect due to delays on the start-up of operations of committed power plants, long pre-development or permitting stage of projects, or</p>	<p>generation facilities.</p>	<p>measures.</p> <p>Setting allowable outage days sets clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.</p>

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			<p>transmission congestion issues and financial concerns. We respectfully maintain that the implementation of the proposed reliability standards may further increase the barriers to entry of power projects in the country, suppressing more supply, and thereby increasing the chances of MLDs.</p> <p>PIPPA stresses that all generators aim for high reliability and efficiency in all of its plants and that no generator would want to have a less than reliable performance. It is this reliability that allows the generators to be competitive consistent with the vision of the Electric Power Industry Reform Act (EPIRA). Furthermore, it is this kind of competition that drives the behavior of generators and motivates them to be more efficient and reliable. The high reliability of our generators further proves that competition is working.</p>		
<b>22</b>	PIPPA	The time frame used as Philippine data may be	We noticed that the data used covers only 2014 to 2018. Generally, the		ERC to consider including Outage days for Major Overhaul (every 5



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		too short to be used as a benchmark. More maintenance cycles are needed for an accurate analysis.	<p>generators conduct their major maintenance every five (5) years. As the data only covers one (1) major maintenance cycle, it may not be as accurate and cannot be made to be representative of maintenance and reliability of plants. We need more cycles to properly reference the data with regard study of reliability. Moreover, it may not have captured other data such as new plants online, etc. What we respectfully want the Honorable Commission to take note of is that given the current data, the 50th percentile will not be reflective of this natural maintenance cycle as the generators which have gone major maintenance will be on the lower part of the percentile calculation.</p> <p>Maintenance schedules are important and should not be shortened. By using the 50th percentile as calculated, the Honorable Commission may have inadvertently ignored the major maintenance schedules of base load plants. The proposed benchmark</p>		years)

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			schedule is then biased at a higher standard, which may not be sustainable for the plants.		
<b>23</b>	Meralco Power Gen (MGEN)	Public Consultation		MGEN respectfully request that a nationwide Public Consultation be undertaken by the Honorable Commission to give Gencos a chance to better explain their comments and positions.	<p>As part of due process being observed by the ERC in its rule making process, the stakeholders are given an opportunity to provide comments and inputs. The ERC has posted the proposed interim reliability performance indices and equivalent outage days per year in its website to give stakeholder sufficient time and venue to submit their comments before coming up with the final interim reliability performance indices and equivalent outage days per year.</p> <p>A second opportunity in the website will be carried out with the submitted comments and the response of the ERC to these comments for transparency. A pre-promulgation round table discussion is being planned.</p>

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<b>24</b>	Meralco Power Gen (MGEN)	We should understand that the cause of the numerous yellow and red alerts were due primarily to the tight system supply-demand balance.	<p>The setting of maximum cap on outage allowance per technology by ERC was prompted by the numerous yellow and red alerts declared by the System Operator during the summer months of the present year. These are caused by either (or multiples) of the following: (a) high system demand as a result of economic growth and/or relatively high ambient temperature resulting to operation of more air-conditioning units; (b) lack of ancillary services provided by the System Operator; (c) lack of generation capability to meet demand; (d) forced outages; and (e) scheduled outages of several power plants undertaking their maintenance.</p> <p>Causes (a) and (b) (which are the primary causes) can only be resolved by encouraging investors to build more power plants to meet the increasing demand of the system in a more timely manner.</p> <p>Cause (c) can only be solved by</p>		While it is true that yellow and red alerts are caused by a host of factors, the outages experienced by the power plants contribute significantly to the tight supply situation that trigger red and yellow alerts. The causes cited in the comments have been or are being addressed as well by the ERC, but these actions are separate from the obvious need to ensure that generating units are able to deliver the power they committed to deliver under the PSAs. Furthermore, imposing performance standards and indices will help ensure discipline among these plants with respect to the conduct of maintenance activities and procurement of efficient and reliable technologies.

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			<p>ensuring that the SO procure adequate amount of ancillary services</p> <p>Cause (d) (i.e. forced outage) can only be solved by encouraging investors to build (and maintain) more reliable power plants such that forced outages can be effectively reduced, if not, entirely prevented.</p> <p>On the other hand, cause (e) (scheduled outages) must be performed to ensure that the power plant will provide energy in the most reliable and effective manner once completed and operational. In essence, one of the objectives of maintenance is to reduce the experience of forced outages in the future. Scheduled outages are composed of specific activities to maintain specific equipment in the power plant which include the generator, turbine, boiler, transmission interconnection, balance of plant and auxiliary system. Such are undertaken by the plant operator</p>		

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			together with contractors under a rigid and tightly controlled procedure and timeline. Reducing the timeline to what is proposed may drastically affect the performance of the maintenance activity and may result, later on, to more forced outages. Equipment cooldown periods, and allocation for plant startups have to be considered above the maintenance activities by maintenance outage contractors. All of these in consideration of the greater concern for plant reliability.		
<b>25</b>	Meralco Power Gen (MGEN)	MGEN suggest that in the Interim, we adopt the NERC Reliability Performance Indices	The data used in the analysis of the Benchmark Reliability Indices and Equivalent is too short to reflect the real conditions and maintenance cycles of the power plants operating in the Philippines (i.e. CY2015 to CY2018 and 4months of 2019). MGEN is concerned that the Philippine data has not captured the major maintenance outage of coal power plants which is done every five years and entail an additional, on the average, 20 days.		The Commission will retain the 50th percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.

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			<p>May we point out that the NERC, which has started data collection from 1962 and was formally instituted in 1982 through the Generating Availability Data System (GADS) has a higher outage indices compared to our data, which may account for the inclusion of the major maintenance outage. In addition, the NERC data has segregated the outage indices based on the age and size of the coal plants. Higher capacity plants will have longer maintenance period which is supported by the 2017 NERC data as shown in Attachment A. comparison of the NERC data and the local Benchmark Reliability Indices and Equivalent data suggest that Philippine power plants provide lower outage days (except for Oil technology) than its US counterpart. These means that power plant operators here in the Philippines (a third world country) are already at par with the performance of first world country (i.e. the US). After an interim</p>		<p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p> <p>The reliability performance indices of generating units will be recomputed annually or as deemed necessary.</p>

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			period of ten years, we can again revisit the indices based on longer data period coverage.		
<b>26</b>	Meralco Power Gen (MGEN)	Decreasing the outage allowance will entail additional cost to Gencos	For a typical 600 MW unit, major maintenance cost will be around USD 25.0Million which will be done every 5 years. Typically, a power plant schedules annually a 30 days maintenance outage and an additional 20 days for major maintenance outage every 5 years. If we adopt and 18-day scheduled outage based on the recommended 50 <sup>th</sup> percentile, then there would be 47% reduction in the maintenance outage allowance. In order to comply with the new scheduled outage reliability index, the plant will have shorter interval of major maintenance which will be every 2.5 years.		ERC to consider the inclusion of Outage days for Major Overhaul (every 5 years)
<b>27</b>	Meralco Power Gen (MGEN)	Cost recovery of additional equipment and maintenance works to improve reliability	Currently, there is no cost recovery mechanism for the Gencos to recover cost incurred to improve its reliability. Unlike in the DUs and Transmission Service provider, any investments		Maintenance works to improve reliability are already included in the O&M of the generation rates granted to PSAs.

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			made to improve reliability can be recovered through its rate base after every regulatory reset process. For Gencos, either they have to file a change in circumstance with their off-taker, if they have a bilateral supply contract, or take that from their profit, if any, if they are trading as merchant		
<b>28</b>	Meralco Power Gen (MGEN)	Reward instead of penalty		MGEN proposes that instead of penalty for Gencos who breach the outage allowance cap, a reward should be given to Gencos whose outages are below the cap. This will incentivize Gencos to operate their plants more efficiently and reliably	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.  Setting allowable outage days sets clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.
<b>29</b>	GNPOWER	General Comment	The benchmark in the draft Rules come from first world country that has	The Honorable Commission should revisit the proposed	The Commission will retain the 50th percentile interim standard.



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			<p>vast resources in manufacturing, fabrication of plant parts and specialists that can support the outages of the power plants. Also, the areas are not subjected to earthquakes and typhoons.</p> <p>Such benchmark, however may not be applicable in the Philippines considering that the time needed to transport the imported goods and supply of specialists to perform the installation should be factored in the duration of outages.</p> <p>In addition, most of the power plants included in the benchmark are not near the ocean and subjected to corrosive conditions of the shoreline area. Most of the major power plants connected to the grid have more frequent divergence that can be damaging to the generators.</p>	interim benchmark which is more appropriate to the power plants in the Philippines as basis of the outage allowances.	<p>The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest</p>
<b>30</b>	SMC Global Power	General Comments:	<p>The initial benchmark should use GADS per technology.</p> <p>5-year history data may not be</p>		<p>The Commission will retain the 50th percentile interim standard. The basis of this is a study by the ERC on the immediately preceding</p>

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			<p>completed due to non-submission of reliability indices from the Generators in the GRMS.</p> <p>50th Percentile data is low when comparison was done between NERC-GADS and GRMS.</p>		<p>4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>
<b>31</b>	GNPOWER	General Comment	<p>In the course of operations of any power plant, there will be years of lower availability and higher availability due to several factors affecting plant operations. With this, selecting the best availability as the benchmark to be applied every year may be not a realistic probability.</p>	<p>The Honorable Commission should revisit the proposed interim benchmark which is more appropriate to the power plants in the Philippines as basis of the outage allowances.</p>	<p>The Commission will retain the 50th percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to</p>

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					consumer interest
<b>32</b>	GNPOWER	General Comment	The reliability of supply can be best solved by allowing new investments for additional capacity and to require a sufficient capacity that is contracted for ancillary/ reserve.		<p>The power supply situation is being addressed through other efforts of DOE. The supply situation, however, is aggravated by the poor reliability performance of some plants, thus compromising consumer interest. Generating Plants, on its own, has a responsibility to deliver the power it committed to deliver. To do so, it has to ensure strict compliance with reasonable standards/indices.</p> <p>The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.</p>
<b>33</b>	PIPPA	Basis of 50th Percentile	The reason for the 50th percentile reliability requirement may not have been clear to all of us, and would need further clarification from the Honorable Commission. In	We seek clarification on the rationale where despite data showing that the GRMS of Philippine power plants are the higher than NERC standards, the	The Commission will retain the 50th percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power

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			<p>interpreting percentiles, the meaning of 50th percentile is that if there are 100 observations, 50 of those are below the 50th percentile value. This means that 50% of the generation units will automatically be below those standards.</p> <p>As raised before, using this standard using percentiles seems may be inequitable for all. We believe and respectfully propose that we begin by examining and studying the target loss of load expectation (LOLE), and then analyze the corresponding reliability standard in order to achieve the target LOLE, in relation to all other factors. We have to analyze the LOLE and its factors as a whole as reliability is merely one of the many that contribute to loss of load. Imposing the proposed reliability standard may not be helpful in the long run if the effect of it will be a detriment to the other factors. Thus, will not help decrease the loss of load.</p>	<p>Honorable Commission wishes to adhere to standards where 50% of the generation units will automatically be below those. Moreover, if these are the values to be used, we would like to be clarified on how the data were calculated.</p>	<p>plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p> <p>The ERC is reviewing price caps and other mitigation measures for WESM. This is part of a comprehensive study being undertaken by the ERC.</p>

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<b>34</b>	CBK Power Company	Section 1.1	Does the RPI per technology of a Hydroelectric also apply to Kalayaan PSPP, which is a Pumped Storage Power Plant	Consider other RPI reference for Pumped Storage PP due to stressful cyclic start-stop operation	Hydroelectric Units and Pumped Storage Units are both under Hydroelectric Technology.
<b>35</b>	Phinma Energy Corporation	General Comment in Section 1.2 (Purpose)	<p>Under Section 1.2, the purpose of the proposed interim benchmark is “to promote accountability in order to achieve greater operation and economic efficiency”.</p> <p>May we seek a clarification on the effects, if any, if a generation company is ranked as the highest or the lowest in the reliability performance indices, and the equivalent outage days per year has been determined?</p> <p>Are there incentives, penalties, intervention, or recommendatory measures that may be implemented should a generation company consistently rank high or low in its performance? Will the result of the rankings have any effect on the certificate of compliance (“COC”) of a generation company?</p>	It is suggested that the proposed rules contain a section on the effects, if any, if a generation company is ranked highest or lowest in the reliability performance indices, and the equivalent number of outage hours has been determined. Reference to applicable rules should be included in such section.	<p>The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.</p> <p>The comment raised actually supports the intention of the interim standards being proposed. If power plants are programmed to and will meet its commitments under the PSA, then the interim standards should not pose any burden in the power plant.</p> <p>Setting of allowable outage is also necessary especially for PSAs wherein said allowance could affect the generation rates as the same are used in the calculation of the</p>

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					<p>billing determinants.</p> <p>Setting allowable outage days sets clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.</p>
<b>36</b>	Aboitiz Power	<p>1.2 Purpose</p> <p>The setting of Interim Benchmark aims to:</p> <p>Monitor the Reliability Performance of all Generating Units at operations and maintenance level;</p>	<p>Instead of using “all Generating Units” we propose that the classification of Generation Units as mentioned under the scope be used for purpose of consistency.</p>	<p><b>1.2 Purpose</b></p> <p>The setting of Interim Benchmark aims to:</p> <p>Monitor the Reliability Performance of <b>all <u>Conventional</u> Generating Units which have an aggregated capacity of 20 MW and above,</b> at operations and maintenance level;</p>	<p>Agree to adopt.</p>
<b>37</b>	GNPOWER	Section 1.2 Purpose	Mathematical model for the determination of Reliability measures using Probabilistic must be different	ERC must select the approach that would best represent the	The Commission sets an interim standard in order to set clear parameters that will guide

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			when using deterministic approach.	generators per technology.	Generating Plants in the development and implementation of reliability performance measures.
<b>38</b>	First Gen Corporation	1.3 Scope		Clarification on the definition of "Conventional Generating Plants". Will embedded generating plants that are not "conventional" be covered?	This shall apply to all Generation Companies with Generating Plants connected to the Grid, Embedded Generating Plants which have an aggregated capacity of 20MW and above.
<b>39</b>	VIVANT	1.3 Scope  The Interim benchmark shall apply to all Generation Companies with Conventional Generating Plants connected to the Grid, and Embedded Generating Plants which have an aggregated capacity of 20MW above.”	There must be a clear definition of the capitalized term “Grid.”  With the lack of definition of the term “Grid”, can the Commission confirm that the Proposed Interim Benchmark (“PIB”) Resolution applies only to generating plants that are connected to the Grid, and that it excludes generating plants that are off-Grid?	We suggest defining the capitalized term “Grid” and a clarification that the PIB Resolution does not apply to generating plants that are off-Grid.	Grid - The High Voltage backbone system of interconnected transmission lines, substations and related facilities, located in each of Luzon, Visayas and Mindanao, or as may be determined by the ERC in accordance with Section 45 of the Act.

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<b>40</b>	CBK Power Company	Section 1.4 Definition of Terms/ Unplanned Outages	Clarification on 'Unplanned Outage' if it includes maintenance outages (non-GOMP) with 7 days advance notice	Unplanned outages should only include Forced Outages and other Outages that did not comply the 7 days advance notice	Planned Outage is the state in which a unit is unavailable due to inspection, testing, preventive maintenance or overhaul. This kind of outage is scheduled with pre-determined duration and is coordinated with the System Operator and shall be reflected in the Grid Operating and Maintenance Program (GOMP).  Thus, any outage outside planned outage is considered unplanned outage (i.e. forced outage, maintenance outage, etc.).
<b>41</b>	SMC Global Power	1.4. Definition of Terms	The Definition of Terms should align with NERC-GADS	Availability Factor  The fraction of a given operating period in which a generating unit is available without any outages.  Forced Outage Factor  The fraction of a given operating period in which a generating unit is not available due to forced outages.	Service Factor - The ratio of Service Hours to the Period Hours of a Unit, expressed in percent.  Service Hours - The number of hours a Unit was in the in-service state, and performing generating functions only.



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				<p>Maintenance Outage Factor</p> <p>The fraction of a given operating period in which a generating unit is not available due to maintenance outages.</p> <p>Planned Outage Factor</p> <p>The fraction of a given operating period in which a generating unit is not available due to planned outages.</p> <p>Service Hours</p> <p>The number of hours a unit was in the in-service state.</p> <p>Unplanned Outage Factor</p> <p>The fraction of period a generating unit is not available due to unplanned outages.</p>	
<b>42</b>	Aboitiz Power	1.4 Definition of Terms	Since the terms <i>Period Hours</i> and <i>Conventional Generating Facility</i> are frequently used in the proposed Resolution, we suggest to include the above terms in the list of Definition of	<p><del><b>Conventional Generating Facility</b></del></p> <p><b><u>Any Generating</u></b></p>	<p>Agree to adopt as follows:</p> <p>Conventional Generating Facility – Any Generating Unit/Plant, which is not a Variable Renewable Energy</p>

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			<p>Terms for clarity.</p> <p>The proposed <i>Conventional Generating Facility</i> definition is from PGC.</p> <p>The proposed <i>Period Hours</i> definition is derived from Resolution No. 17, Series of 2013 - Resolution for the Reliability of Generating Units</p>	<p><b><u>Unit/Plant, which is not a Variable Renewable Energy Generating Facility</u></b></p> <p><b><u>Period Hours</u></b></p> <p><b><u>The number of hours a Unit was in the Active State</u></b></p>	<p>Generating Facility.</p> <p>Period Hours – The number of hours a Unit was in the active state.</p>
<b>43</b>	GNPOWER	Section 1.4 Definition of Terms	No clear definition of “Availability”	The definition must differentiate “Partially Available Units” from “Fully Available Units”	Available - The state in which a Unit is capable of providing service, whether or not it is actually in service and regardless of the capacity level that can be provided.
<b>44</b>	GNPOWER	Section 1.4 Definition of Terms	The definition of the “Derating State” should consider the causes not related to the Transmission Constraints and Overriding constraints imposed by the System Operator	Derating State – The state in operation of a Generating Unit at less than its Net Maximum Capacity <b><u>which shall not be related to transmission constraints and overriding constraints imposed by the System Operator.</u></b>	Derating that account for transmission constraints is categorized as OMC Derating
<b>45</b>	GNPOWER	Section 1.4 Definition	The generator’s reliability is being	The measurement of Reliability	The interim benchmark shall apply

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		of Terms – “Reliability”	<p>measured through the generator’s ability to deliver electricity to its customers within accepted standards and amount desired.</p> <p>The Honorable Commission should take note that generators have developed strategies to reliably deliver to the customers their demand requirements.</p>	<p>must be consistent on how the PSAs are executed.</p> <p>There must be a separate section discussing on how the Reliability will be measured for a “Merchant Plant”, “Fully Contracted Plant” and Combination</p>	to all Generation Companies with Generating Plants connected to the Grid, Embedded Generating Plants which have an aggregated capacity of 20MW and above.
<b>46</b>	GNPOWER	Section 1.4 Definition of Terms - Service Factor	The definition must consider that the Service Hours (as the function of the Service Factor) may be affected by the transmission constraints and overriding constraints imposed by the System Operator	The Honorable Commission might need to elaborate on this to avoid confusion in the recording of service hours that a generating unit is actually running, in-service and delivering power to the Grid.	<p>The computed interim standard do not include Outside Management Control Outage.</p> <p>Thus, any outage that is beyond the control of the generating unit will not be included in computation of the generating units’ Unplanned Outage.</p>
<b>47</b>	MERALCO	1.4 Definition of Terms	<p>Meralco observes that the following terms, while capitalized, are not defined:</p> <p>(a) Available Hours; (b) Period Hours;</p>	For consideration of the Honorable Commission.	<p>Agree to include in the definition of terms as follows:</p> <p>Available Hours – The number of hours a Unit was in the available state and should be the total of the Service Hours and the Reserve Shutdown</p>

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			<p>(c) Unit;            (d) Component;            (e) Grid Operating and Maintenance Program (GOMP);            (f) Maintenance Outage Hours;            (g) Planned Outage Hours; and            (h) Unplanned Outage Hours;</p> <p>For clarity, these should be defined in the Proposed Interim Benchmark.</p>		<p>Hours.</p> <p>Period Hours - The number of hours a Unit was in the active state.</p> <p>Grid Operating and Maintenance Program (GOMP) - The Operating Program of the Grid prepared by the System Operator that contains the Scheduled Maintenance of grid components and/or facilities, its duration, estimated date and time of start and completion.</p> <p>Maintenance Outage Hours - The number of hours a Unit was in Schedule Outage state or maintenance outage state.</p> <p>Planned Outage Hours - The number of hours a Unit was in the planned outage state (GOMP).</p> <p>Unplanned Outage Hours -The number of hours a Unit was in the unplanned outage state.</p>

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<b>48</b>	MERALCO	1.4 Definition of Terms “Forced Outage Factor” “Unplanned Outage” “Unplanned Outage Factor”	<p>(a) While “Forced Outage Factor” is defined, there is no counterpart definition for “Forced Outage”;</p> <p>(b) Meralco requests clarification on the difference between “Forced Outage” and ”Unplanned Outage” and “Forced Outage Factor” and ”Unplanned Outage Factor”;</p> <p>(c) Meralco requests clarification on the meaning of “Planned Outage (GOMP)”, in particular, does this mean Planned Outage as approved by the System Operator and reflected in the GOMP?</p> <p>(d) For consistency, the term “period Hours”, if intended to be a defined term, should likewise be capitalized in this provision and defined.</p>	For consideration of/clarification by the Honorable Commission.	<p>Planned Outage – is the state in which a unit is unavailable due to inspection, testing, preventive maintenance or overhaul. This kind of outage is scheduled with pre-determined duration and is coordinated with the System Operator and shall be reflected in the Grid Operating and Maintenance Program (GOMP).</p> <p>Thus, any outage outside planned outage is considered unplanned outage (i.e. forced outage, maintenance outage, etc.).</p> <p>Forced Outage - An outage that requires immediate removal of a unit from service, another outage state, or a reserve shutdown state.</p>
<b>49</b>	MERALCO	1.4 Definition of Terms “Maintenance Outage Factor”	<p>(a) While “Maintenance Outage Factor” is defined, there is no counterpart definition for “Maintenance Outage”.</p> <p>(b) Meralco notes that “preventive</p>	For consideration of/clarification by the Honorable Commission.	Planned Outage – is the state in which a unit is unavailable due to inspection, testing, preventive maintenance or overhaul. This kind of outage is schedule with

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		<p>“Planned Outage”</p> <p>“Planned Outage Factor”</p>	<p>maintenance” is included in the definition of “Planned Outage”. Meralco thus requests clarification on the difference between “Maintenance Outage” and ”Planned Outage” and “Maintenance Outage Factor” and ”Planned Outage Factor”.</p>		<p>pre-determined duration and is coordinated with the System Operator and shall be reflected in the Grid Operating and Maintenance Program (GOMP).</p> <p>Thus, any outage outside planned outage is considered unplanned outage (i.e. forced outage, maintenance outage, etc.).</p> <p>Forced Outage - An outage that requires immediate removal of a unit from service, another outage state, or a reserve shutdown state.</p>
<b>50</b>	MERALCO	<p>1.4 Definition of Terms</p> <p>“Service Hours”</p> <p>“Service Factor”</p>	<p>(a) Meralco requests for clarification on what the term “in-service state” means; and</p> <p>(b) Meralco notes that the definition of Service Factor includes not just “in-service” but that the Generating Unit is “actually running” or “delivering power to the Grid”. Should these be included in the</p>	<p>For clarification by the Honorable Commission.</p>	<p>In Service - The state in which a Unit is electrically connected to the Grid.</p> <p>Service Factor - The ratio of Service Hours to the Period Hours of a Unit, expressed in percent.</p> <p>Service Hours - The number of hours a Unit was in the in-service state, and performing generating</p>

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			contemplation of "Service Hours"?		functions only.
<b>51</b>	PEMC	1.4 Definition of Terms		Suggest to include the mathematical formula for the Availability Factor, Forced Outage Factor, Planned Outage Factor, Maintenance Outage Factor, Service Factor, and unplanned Outage Factor as an additional section after the Definition of Terms for clarity.	Agree to add mathematical formula of outage factors.
<b>52</b>	PEMC			Period Hours should be defined for clarity as all factors are referred to this.	Agree to add definition as follows:  Period Hours - the number of hours a Unit was in the active state.  Active - A Unit generally enters the active state on its service date
<b>53</b>	PEMC		Sec. 1.3 mentions conventional generating plants. Do they refer to the plants per technology covered by the indices study (e.g. pulverized coal, circulating fluidized, combined cycle, gas turbine, diesel, etc.)? In the benchmarking, it includes biomass	Suggest to include definition of conventional generating plants in Sec. 1.4 for guidance.	Conventional Generating Facility – Any Generating Unit/Plant, which is not a Variable Renewable Energy Generating Facility.

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			also. Does this mean that it also falls under the category of conventional plant?		
<b>54</b>	SMC Global Power	1.5 Provision of Information	For transparency.	We suggest to include how the values for the weighted average RPI per technology were computed.	Agree to include computation of weighted average.
<b>55</b>	SN Aboitiz Power	II. Proposed Interim Outage Allowance of Generating Units  2.1 Weighted Average Reliability Performance Indices per Technology	For Hydro Units, availability is a function of Hydrology. Historical data that was used for the benchmark may not necessarily reflect the hydrological situation and for the considered years (may or may not be a normal hydrological year) and the benchmark that will be set may be too high.	For consideration, the commission should consider hydrology in the setting of indices for hydro units.	The computed Reliability Performance Indices was based on a study of local Generating Plants considering a period of four years from January 2015 to May 2019.
<b>56</b>	SN Aboitiz Power	II. Proposed Interim Outage Allowance of Generating Units	As compared to international standards, the Philippine performance is significantly better. Using the Philippine median will mean half of the generator population will fail, even if internationally, the local performance is acceptable.  This is not to say that we would want	For the Commission's consideration, may we propose instead to use the NERC-GADS as a reasonable basis for the reliability indices.	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably,



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			to be lenient by adopting lower values as benchmark for the Philippines. However, Improving and driving the reliability indices (which are currently better than international standards but are lagging metrics), will not address the generation / reserves deficiency in the country. Additional capacity will, so the focus on how to expedite projects that will support new capacity in the grid should instead be prioritized.		there are also plants whose performance have been less than reliable.  Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.
<b>57</b>	VIVANT	Table 1. Weighted Average Reliability Performance Indices Per Technology for CY 2015-2019	<p>The sampling used by the Commission may not be representative of an off-grid operation. The sampling may not have considered the running hours and plant capacity factor.</p> <p>The data presented may not have reflected the realistic situation of ALL power plants in the country due to the following reasons:</p> <p>1. The data presented did not reflect variance between data sets from which the weighted average has been drawn.</p>	<p>We suggest including a more comprehensive data presentation and analysis so to reflect all factors affecting the plant outages.</p> <p>We also suggest reasonable differentiation and distinction between and among plants that are peaking or baseload, merchant plants or plants with bilateral contracts.</p>	The computed Reliability Performance Indices was based on a study of local Generating Plants considering a period of four years from January 2015 to May 2019.

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			<p>2. Since power plants greatly vary in sizes per technology, it will be more realistic if weighted average are classified in terms of plant size range per technology which may be a factor affecting the number of plant of outages.</p> <p>3. The data presented did not reflect bilateral arrangements which may also affect the compliance of power plants to their allowed outage allowances. These agreed outage allowances have been taken into consideration in formulating the tariff.</p> <p>4. These data may not have reflected the figures of power plants in off-grid areas where operational situation is peculiar from those operating in the grid.</p>		
<b>58</b>	VIVANT	2.1 Comparison of Results  ...The Commission foregoes the is	The power plant data used in the PIB Resolution may not be representative and reflective of all scenarios why outages are exhibited by plants (PSA provision, force majeure, cascading	We suggest ERC to further explain how it led to selecting of 50 <sup>th</sup> percentile.	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while

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		considering the use of the 50 <sup>th</sup> percentile of reliability performance indices of generating units as an interim Benchmark...	effect, etc.)		there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.  Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.
<b>59</b>	SMC Global Power	2.1. Weighted Average Reliability Performance Indices per Technology	Based on the submitted data to the GRMS, the weighted average reliability performance indices per technology should be computed considering only those Generating Plants that are fully operational during the period of CY 2014-2019.		All generating units that are active during the period January 2015 to May 2019 are included in the computation of weighted reliability performance indices, with respect to each generating units' active or period hours.
<b>60</b>	SMC Global Power	2.1. Weighted Average Reliability Performance Indices per Technology	The age of the plants was not considered in the computation of the Indices. This is a major factor in the performance of plants, since the outage frequency of older plants is higher relative to newer ones. There should have been a subclassification of		Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than

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			plants according to its age, per technology and the weights used in computing the index should have reflected this.		fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant’s age and its performance.
<b>61</b>	Aboitiz Power	2.1. Weighted Average Reliability Performance Indices Per Technology  The inventory of data from CY 2014 to 2018 on Generation Performance was utilized by the Commission to set an interim Benchmark on Outage Days per Year of Generating Units.	We would like to kindly ask for clarification on what specific report was used by the Honorable Commission to get the inventory of data as stated in Section 2.1.		The reliability performance of generating plants is based on the submissions by generation companies’ event reports in compliance to ERC Resolution No. 21, Series of 2016. From these submissions, the reliability performance indices which measure how a generating unit performed in a specified period were generated through the Grid Reliability Monitoring System Application.
<b>62</b>	Global Business	2.1 Weighted Average Reliability	The table provided the aggregate reliability performance indices and	We respectfully suggest to provide a more stratified	Based on the GRMS computed indices, five (5) generating units

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	Power Corporation	<p>Performance Indices per Technology</p> <p>Table 1. Weighted Average Reliability Performance Indices per Technology for CYs 2015-2019</p> <p>Table 2. Computed Equivalent No. of Outage Days per Year for CY 2015-2019 per technology</p>	<p>outage days for each technology. However, duration and nature of outages depend on a number of factors including age of facility, size of facility, resource constraints and location among others.</p>	<p>classification to consider factors affecting outages:</p> <ol style="list-style-type: none"> <li>1. The older the facility, the more likely it will experience outages. Hence, degradation factor may be considered.</li> <li>2. Depending on size of facility, availability of spare parts become more challenging especially during forced outages (e.g. transformer breakdown).</li> <li>3. Resource constraints affects outages including availability of fuel (feedstock, hydro constraint, geothermal steam, etc.).</li> <li>4. Location affects availability of equipment especially during forced outages and facilities in off-grid areas.</li> <li>5. Network Configuration – this plays a major role in occurrence of plant outages. For units with transformers without 1:1 correspondence (typical for</li> </ol>	<p>more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.</p>

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				diesel/bunker power plant), outage calculation shall be based exclusively on events affecting the units alone. In other words, the healthy unit that is not capable of delivering due to inability of the transformer unit should not be considered on outage.	
<b>63</b>	Global Business Power Corporation	2.1 Weighted Average Reliability Performance Indices per Technology	In any case, the proposed classifications (50th percentile) is not based on a number technical parameters which is the main reason of plant outages.	In any case, the proposed classification is not based on a number of technical parameters which is the main reason of plant outages. Put it simply, this does not represent an industry standard of reliability but only shows rank among all generators. We respectfully submit that this is not an appropriate standard to use.	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.  Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.

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<b>64</b>	CBK Power Company	Section 2.1, Table 2	Based on table 2, Planned outage equivalent no. of days is only 26.3. In case of CBK, the overhauling of one unit consumed more than this allowance. (KSPP = 80 days, CHEPP and BHEPP = 45 days). Will this be exempted in the outage allowance?	We recommend that average plant outage allowance shall not be applied during overhauling period	The ERC is considering to include Outage days for Major Overhaul (every 5 years)
<b>65</b>	GNPOWER	Section 2.1 Weighted Average Reliability Performance Indices per Technology	<p>The draft has not discussed the specific causes of the outage which is the basis of the reliability performance index of the generators.</p> <p>The measurement of Reliability should be different for energy provider and reserve provider.</p> <p>There shall be a separate section discussing the deficit of firm contracts of NGCP for Ancillary Services that resulted to numerous Yellow Alert</p>	The Honorable Commission should take note that outages may be due to Transmission-related problem/constraints, security related Market intervention by the System Operator (local interventions are not included in the report by the Market Operations) which are out of generators' control	The computed Interim Standard does not include Outside Management Control Outage. The latter is under consideration by the ERC.
<b>66</b>	PEMC	2.1 Weighted Average Reliability Performance Indices Per Technology		In setting the performance indices, the age of the power plant may also be considered as a next layer of classification.	Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating

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					units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.
<b>67</b>	PEMC		<p>Assuming that all generators comply with the calculated reliability performance indices such as Forced Outage Factor or commonly termed as Forced Outage Rate (FOR), what will be the resulting Loss of Load Probability (LOLP)?</p> <p>If the process starts with determining the target LOLP then afterwards performance indices should be based on it?</p>		<p>The LOLE can also be computed for planning purposes.</p> <p>The Commission considered various factors with respect to the draft Reliability Performance Indices, including supply and demand trends and forecasts. The current supply situation requires greater diligence and vigilance among power plant operators so that committed energy will be delivered to address the country's</p>



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					growing power demand. Setting outage allowances will help guide power plant operators into observing reasonable limits on outages based on carefully studied indicators.  The Commission set an interim standard in order to encourage and motivate Generating Plants to perform better by reducing its planned and unplanned outages.
<b>68</b>	PEMC		Is capacity deration considered in the calculation of the performance indices?		The computed Indices do not include deratings.
<b>69</b>	PEMC		Why is there no performance standard calculated for the Maintenance Outage Factor and Force Outage Factor?		Maintenance Outage Factor and Force Outage Factor were contained in Unplanned Outage Factor.
<b>70</b>	Balingasag Power Station	Section 2.2	For the 50th percentile, weighted average was used rather than percentile ranking  The results of 50th percentile RPI though attainable, is not appropriate	To use percentile ranking than weighted average. The commission must consider the life span of each generating unit in assessing the allowable	Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage

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			<p>for implementation due to:</p> <p>Differences in Equipment Manufacturer recommendation on maintenance outage plans and overhaul schedules.</p> <p>Each technology requires different OEM outage requirement or activities</p>	<p>planned and unplanned outage. New equipment is considerably less prone to unexpected failure while older ones are programmed for higher frequency of maintenance outage. Need for further study and general consultation with affected generating companies</p>	<p>Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.</p>
<b>71</b>	Global Business Power Corporation	2.2 50th, 60th, and 75th Percentile Reliability Performance Indices per Technology	Use of Percentile Reliability Index does not represent facility specific constraints and for the proposed 50th percentile standard, there will always be a 50% generator population below it.	The percentile rank used in the proposed Reliability Performance Indices per Technology only provides a particular point in which a score in the frequency distribution is equal or lower than the rank. This does not represent an industry standard of reliability but only shows rank among all generators. Reliability standard should be based on technical limitation of the plant and not based on ranking.	<p>The Commission will retain the 50<sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to</p>

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				<p>Particularly, percentile rank only measures relativity of scores i.e. for 50th percentile, 50% above and 50% below. Reliability of generating units is a matter of technical considerations hence these parameters should be considered including age, size, resource, technology, etc.</p> <p>Use of reliability index warrants further study especially if used as cap for outage allowance. To note, planned outage of 10 days (50th Percentile provided for CFB Coal) is not sufficient for actual plant maintenance.</p> <p>Comparing NERC's reliability indices vs. GRMS' 50th percentile exhibits huge variance making it unattainable even for US-based generators. Considering age of PH-based facilities, using half of the US counterpart is not within engineering standard.</p>	<p>deliver, as this has implications to consumer interest.</p> <p>What the ERC proposed at 50th Percentile for Pulverized Coal is 18.7 days for planned outage and 15.3 days for unplanned outage. This is higher than the allowance set by the Electricity Generating Authority of Thailand (EGAT) which is 13.8 days and 8.4 days of planned and unplanned outage per year (CY 2013-2017).</p>

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				We respectfully suggest that there should be an industry forum, technical consultations and collaborative effort to discuss an equitable Outage Allowance for Generating Units fitted to the Philippine setting.	
<b>72</b>	Aboitiz Power	2.2 50 <sup>th</sup> , 60 <sup>th</sup> and 75 <sup>th</sup> Percentile Reliability Performance Indices per Technology	<p>Percentile is calculated based on the number of observations with lower values versus the total observations. It can be summarized as follows:</p> <p><b>Percentile</b> = (# of observations with lower values/total # of observations) x 100%</p> <p>Thus, 50<sup>th</sup> percentile means that 50% of the actual performance index per technology is lower than the identified 50<sup>th</sup> percentile reliability performance index.</p> <p>Similarly, 60<sup>th</sup> percentile means that 60% of the actual performance index per technology is lower than the identified 60<sup>th</sup> percentile reliability</p>		<p>The reliability performance of generating plants is based on the submissions by generation companies' event reports in compliance to ERC Resolution No. 21, Series of 2016. From these submissions, the reliability performance indices which measure how a generating unit performed in a specified period can be generated through the Grid Reliability Monitoring System Application.</p> <p>ERC Resolution No. 21, Series of 2016 requires generation companies with Generating Plants connected to the Grid, Embedded Generating Plants which have an</p>

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			<p>performance index.</p> <p>Furthermore, 75<sup>th</sup> percentile means that 75% of the actual performance index per technology is lower than the identified 75<sup>th</sup> percentile reliability performance index.</p> <p>Choosing any of the percentiles as basis for the reliability performance indices will automatically mean there will be non-compliant generators. For example, in choosing the 50<sup>th</sup> percentile, then 50% of the observations will automatically fail.</p> <p>We seek clarification on why the Honorable Commission chose percentiles as a basis for determining the benchmark reliability of gencos. If Statistics will be used, then the frequency distribution of the observations should be determined and analyzed first.</p> <p>We would also like to ask for clarification on the details of the data used by the Honorable Commission.</p>		<p>aggregated capacity of 20MW and above to submit an event report.</p>

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			Are these all generation units (per unit) in the country?		
<b>73</b>	PEMC	Section 2.2: 50 <sup>th</sup> , 60 <sup>th</sup> and 75 <sup>th</sup> Percentile Reliability Performance Indices per Technology	The mechanism in determining the proposed outage factors may not have considered the age of generating plants. This has a significant impact on how the data is distributed/skewed, from which the percentile method is based.		Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.
<b>74</b>	First Gen Corporation	2.3 North American Electric Reliability Corporation Generating Availability Data		NERC GADS or the North America reliability council statistics can be very different compared to the situation of conventional plants in the Philippines.	The NERC GADS reliability indices was used as a reference to compare the GRMS Results with the performances of generating units in North America.

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		System (NERCGADS)		<p>For instance, plants under the NERC GADS may use different equipment, and experience different temperature and climate. Example:</p> <p>1) Geothermal reservoirs are unique in every part of the world and even sectors in the same reservoir behave differently.</p> <p>NERC standards use data from North America and Mexico. The general condition of reservoirs in that part of the world are "dry" (saturated steam), while in the Philippines they are considered "wet" (2-phase fluid). Two-phase fluid separation is prone to solid carry over and low pH attack, unlike dry steam conditions. This wet geothermal fluid contributes to increased corrosion and erosion issues leading to increased outages (both planned and unplanned).</p>	

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				<p>2) Most of the geothermal power plants in the Philippines have been operating for more than 20 years. Design lives of power plants are usually 20 years. Given that geothermal plants are operating at or beyond their design life would mean that the availability and reliability will not be the same as that of plants within their design life. This can only be corrected once extensive rehabilitation and life extension program have been successfully initiated (Tongonan and Bacman).</p> <p>Thus, the NERC GADS numbers may not accurately reflect the outage/reliability data of Philippine power plants.</p>	
<b>75</b>	Balingasag Power Station	Section 2.5	GRMS performance is better than NERC GADS performance	<p>The actual average RPI index is already better compared to NERC GADS. Suggest to use Table 2 for Interim Benchmark for RPI.</p> <p>If the commission wanted 50% of</p>	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have



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				existing plant to improve its performance, then Table 3 should be improved and amended. Instead of adopting weighted average for 50 Percentile, determine the performance of plant with 50 Percentile Ranking. The actual performance of that plant (with 50 Percentile Ranking) should be considered as standard RPI.	consistently performed reliably, there are also plants whose performance have been less than reliable.  Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.
<b>76</b>	KEPCO SPC	Item 2.5 Combination of GRMS and NERC-GADS Results	In this part, it generally shows that in the GRMS data, Philippines is actually performing better than NERC-GADS. To state, the data of NERC-GADS was widely used a reference by industry analysts	We would like to ask why ERC should put limits on our Outages if we, the Generators, are actually performing better than the basis. We understand that it was driven by the scenario in Luzon, but this problem will be better addressed and perhaps, mitigated if we encourage more power plants to be installed in the Philippines.	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.
<b>77</b>	SMC Global Power	2.5 Combination of the GRMS and the NERC-GADS Results	How can they conclude that the “Generating Plants’ performance considered in the computation of Reliability Performance Indices in		GRMS Outage Factors that have lower values are considered as satisfactory result or positive performance.

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		Page 7, under Table 12.	GRMS was better than the NERC GADS' Generating Plants" statement if there are other factors that could be considered, assumptions can be different, etc.? NERC-GADS has more than 5,000 Conventional Generating Units in North America.		
<b>78</b>	SMC Global Power	2.5 Combination of the GRMS and the NERC-GADS Results	Although the development of the proposed RPI has reliable basis in the NERC-GADS and the GRMS, the environment of the power plants used in developing the NERC-GADS should have also been considered. It would greatly help if the performance of power plants operating in a similar environment to the Philippines were also observed.		The Electricity Generating Authority of Thailand (EGAT) recorded an average of 3.79% Planned Outage Factor and 2.29% Unplanned Outage Factor that is equivalent to 13.8 and 8.4 of planned and unplanned outage days per year (CY 2013-2017).
<b>79</b>	MINERGY	Section 2.6	The Commission is considering the use of the 50th percentile of GRMS reliability performance indices as interim benchmark for generating plants' allowed outage days. We suggest that the Commission, instead of relying only in the GRMS dataset, would also consider the NERC-GADS		The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably,

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			<p>dataset and validate with industry norms/best practices in setting the generating plants' maximum annual outage days.</p> <p>As an example, diesel generating plants are only operated during peak periods and emergency grid conditions. Thus, it may take two years or more for it to require the major preventive maintenance as set by the equipment manufacturer since the required running hours is not attained in a single year of operation. Hence, setting a very low allowance for outage days in a year (as culled from the GRMS dataset, whether average or nth percentile) would result in a certain diesel plant to exceed the allowed outage days during the period it is undergoing major maintenance.</p> <p>Furthermore, as stated in Section 1.1 of the draft, the yellow and red alert statuses in Luzon grid were due to insufficient and depleted operating</p>		<p>there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>

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			reserves brought about by the high system demand and unplanned outages of power plants. We suggest that ERC focus on setting the maximum unplanned outages of power plants in a year inasmuch as the planned outage scheduling of power plants can be coordinated by the SO grid-wide.		
<b>80</b>	SMC Global Power	2.6 Comparison of Results		<p>We suggest to set the allowable outage days per year per plant type based on:</p> <p>Planned Outage: Generators' OEM recommended maintenance outage days</p> <p>Unplanned Outage: GADS standards could be utilized.</p>	<p>The Commission will retain the 50<sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>

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<b>81</b>	SMC Global Power	2.6 Comparison of Results	Overhauling requires longer time since machines will get major repair and inspected to identify the faults, if any. This is done to ensure the reliability and efficiency of any particular equipment or plant.	We suggest to consider the 60 Days major overhauling of the power plant's Generating Unit every 5 years.	The ERC is considering to include Outage days for Major Overhaul (every 5 years)
<b>82</b>	SMC Global Power	2.6 Comparison of Results	This may initially impact the reliability performance of the power plant due to longer days of outages but will generally benefit the Grid for the increase of the generating plant's capacity.	We also suggest to consider the upgrading / retrofitting of a Generating Unit that may last for 60 days.	The ERC is considering to include Outage days for Major Overhaul (every 5 years)
<b>83</b>	GNPOWER	Section 2.6 Comparison of Results	The 50 <sup>th</sup> percentile as the basis for the Interim Benchmark may not be the best case for the generators.  The Honorable Commission should take note that the Planned Outages are necessary for the conduct of the maintenance programs for inspection and repair of major equipment to ensure the plants' reliability which will	We respectfully request the Honorable Commission to conduct further studies in setting the benchmark to avoid compromising the generator's programs to ensure high performance of their generating units.	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than

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			<p>result to higher availability.</p> <p>Setting the Planned Outages below the standard duration for coal-fired power plants may result to recurring Unplanned Outages due to unmaintained/deteriorating equipment.</p>		<p>reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>
<b>84</b>	First Gen Corporation	2.6 Comparison of Results	<p>What is the rationale for choosing a different source for the benchmark of Oil (NERC GADS) and Biomass (GRMS) while the rest will use the 50th Percentile benchmarks?</p> <p>Did ERC consider the number of data before considering a 50th percentile considering few numbers of units per type? Based on the data (decreasing outage days on increasing percentile), it can be surmised that data were arranged from most outage days to least outage days, is it common to have percentile value diminishing?</p> <p>It seems that outage days for the chosen 50th percentile values are very</p>	<p>Suggest considering increasing data set. Such as all data and not average data. Suggest also classifying data into major outage years and minor outage years.</p> <p>Suggest widening the data samples, and using higher value than median, saying 75th percentile on increasing data, which is more realistic. Increase size of data set.</p> <p>a. Consider 30 to 50 yr - data set b. Consider expanding country benchmarks outside North America</p>	<p>Any outage outside planned outage is considered unplanned outage (i.e. forced outage, maintenance outage, etc.).</p>

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			low compared to the actual situation of power plant outage. Are maintenance outage days considered in unplanned outages?		
<b>85</b>	PEMC	Section 2.6: Comparison of Results	With the proposed outage factors, generating plants which have relatively low allowable outage factors may resort to other measures such as economic withholding to comply with the benchmarks.		<p>The Commission will retain the 50<sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest</p>
<b>86</b>	PEMC	III. Outage Allowance Application	Will the downtime brought about by earthquakes and other calamities as well as situations beyond the Generation Company's control be part		The computed interim standard do not include Outside Management Control Outage. The latter is under consideration by the ERC.

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			of the Outage Allowance Application or is it excluded?											
<b>87</b>	Aboitiz Power	<p>2.6 Comparison of Result</p> <p>The foregoing considered, the Commission is considering the use of the 50<sup>th</sup> percentile of reliability performance indices of generating units as an interim benchmark for Reliability Performance Indices for all technologies except for Oil fired thermal that will be based on NERC GADS Indices and Biomass that be sourced from the GRMS weighted average result.</p>	<p>Using the 50th percentile as indicated on the Table 15, it shows that:</p> <table border="1"> <thead> <tr> <th>Technology</th> <th>Planned outage (days)</th> <th>Unplanned outage (days)</th> </tr> </thead> <tbody> <tr> <td>Diesel</td> <td>0.1</td> <td>0.7</td> </tr> <tr> <td>Geothermal</td> <td>0.0</td> <td>1.8</td> </tr> </tbody> </table> <p>The outage allowances given in a year for the Diesel and Geothermal technologies are very low and almost zero to two days only. These outage allowances are hardly attainable.</p> <p>We would like to reiterate our comment above that imposing the 50th percentile of reliability performance indices of generating units will automatically mean half of the generators will be non-compliant.</p>	Technology	Planned outage (days)	Unplanned outage (days)	Diesel	0.1	0.7	Geothermal	0.0	1.8		<p>Reliability Performance Indices and Outage Days for Diesel and Geothermal will be revisited.</p> <ol style="list-style-type: none"> <li>1. The computed Indices do not include Outside Management Control Outage.</li> <li>2. The indices are applicable for per unit basis.</li> <li>3. The indices are applicable for per unit basis.</li> <li>4. The computed Indices do not include deratings.</li> </ol>
Technology	Planned outage (days)	Unplanned outage (days)												
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			<p>We would like to kindly ask for the basis for choosing the 50th percentile.</p> <p>The proposed reliability standards force the generators to compete to be in the upper 50%, when in fact, the overall actual reliability indices are better than NERC, which is a widely accepted reliability index.</p> <p>We would also like to be clarified on the following:</p> <ol style="list-style-type: none"> <li>1. Do the indices include Outside Management Control (OMC)?</li> <li>2. What is the application of indices? Will it be taken per unit? per plant/node? per COC? per company?</li> <li>3. Is it allowable that a certain unit/plant compensate the excess of the other units/plants?</li> <li>4. Are deratings included in the computation?</li> </ol>		
<b>88</b>	MINERGY	Table 15. Equivalent Outage Days per Year for Diesel Plant;	The proposed outage allowance of 0.7 days per year for Diesel Generating Unit's planned outage is not sufficient to conduct quality "major overhaul	For No. of Days Unavailable, we are proposing for 37 Days per unit/year;	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding

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		<p>No. of Days Unavailable: 0.8 Days;</p> <p>No. of Days for Planned Outage: 0.1 Days;</p> <p>No. of Days for Unplanned Outage: 0.7 Days</p>	<p>maintenance for large generating unit” which will normally require more downtime days for disassembly, parts cleaning and clearances measurement/replacement, re-assembly, test and commissioning activities.</p> <p>The Bunker-fired diesel plant may have the least number of outage days in a year as per GRMS probably because of its very low operating time/running hours being an emergency, standby/back-up or peaking plant. The lesser the unit is run, the lesser it will require repair/maintenance or experience outages. This will also redound to higher plant availability.</p> <p>However, over the years of intermittent operation, the unit will ultimately attain the running hours that will require its major preventive maintenance. To carry out the recommended major overhaul activities by the equipment</p>	<p>For the Planned Outage Allowance, we are proposing for 25 days per generating unit per year;</p> <p>For Unplanned Outage Allowance, we are proposing for 12 days per unit/year.</p>	<p>4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>

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			manufacturer (as per maintenance manual), the required number of days the unit will be on outage status is at least 25 days. The typical plant availability factor for diesel plant with major overhaul in a year is about 90% and over 95% if without.		
<b>89</b>	MINERGY	Table 15. Equivalent Outage Days per Year for Hydro-Electric Plant  Days Unavailable: 9.6 Days  Days for Planned Outage: 9.3 Days  Days for Unplanned Outage: 0.3 Days		For No. of Days Unavailable, we are proposing for 32 Days per unit/year.  For the Planned Outage Allowance, we are proposing for 26 days per generating unit per year.  For Unplanned Outage Allowance, we are proposing for 6 days per unit/year.	The Commission will retain the 50 <sup>th</sup> percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while there are power plants that have consistently performed reliably, there are also plants whose performance have been less than reliable.  Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.
<b>90</b>	Global Business Power	Reliability Performance Index (RPI) using the 50th	As the Grid Management Committee may confirm in the Harmonized PMS of Visayas Power Plants, none of the	We respectfully submit that the 50th percentile standard is practically impossible to do	What the ERC proposed at 50th Percentile for Pulverized Coal is 18.7 days for planned outage and

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	Corporation	percentile (Table 15): <b><u>Pulverized Coal:</u></b> Planned Outage: 18.7 days Unplanned Outage: 15.3 days <b><u>CFB Coal Plants:</u></b> Planned Outage: 10.0 days Unplanned Outage: 9.5 days <b><u>Diesel Plants:</u></b> Planned Outage: 0.1 days Unplanned Outage: 0.7 days	plants in Visayas would be able to comply with the RPI. Accordingly, we respectfully request to get more clarification from the Honorable Commission on how the RPI was computed so that we can properly comment on the matter.	technically.  We respectfully suggest the conduct of further studies that are specifically applicable to the Philippines. This should include stratified clusters considering Age, Technology, Network Configuration, etc.	15.3 days for unplanned outage. This is higher than the allowance set by the Electricity Generating Authority of Thailand (EGAT) which is 13.8 days and 8.4 days of planned and unplanned outage per year (CY 2013-2017).
<b>91</b>	Global Business Power Corporation	RPI using the 50th percentile (Table 15)	Scenario 1: Small Unit vs. Big Unit (Different Capacity)  CFB Coal Plants	We respectfully suggest that there should be a different category for the smaller unit and for the larger unit. The larger unit should have more outage	Based on the GRMS computed indices, four (4) generating units with capacity higher than 150 MW entered the top ten (10) generating units with highest Planned Outage

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			<p>Plant A: 1 x 150 MW capacity</p> <p>Plant B: 1 x 600 MW capacity</p> <p>Using the proposed RPI (50th percentile), both Plant A and Plant B will each get outage allowance of 10 days despite the fact that Plant B is 4x bigger than Plant A.</p>	allowance per year.	Factor, while the remaining six (6) generating units are 150 MW and lower capacity. For Unplanned Outage factor, four (4) generating units with capacity higher than 150 MW entered the top ten (10), while the remaining six (6) generating units are 150 MW and lower capacity. This would prove that capacity of the plant should not be correlated to outage allowance.
<b>92</b>	Global Business Power Corporation	RPI using the 50th percentile (Table 15)	<p>Scenario 2: Single Unit vs. Multiple Units (Same Capacity)</p> <p>CFB Coal Plants</p> <p>Plant A: 600 MW capacity (4x 150 MW).</p> <p>Plant B: 600 MW capacity (1x 600 MW).</p> <p>Using the proposed RPI (50th percentile), the aggregate Planned Outage Allowance for Plant A is 4 x 10 days or a total of 40 days for the year. On the other hand, the aggregate Planned Outage Allowance for Plant B</p>	<p>It is nowhere found in any engineering standard that maintenance outage of a coal plant is 10 days only. Considering all activities from cooling down of the facility to cold-start, this is technically impossible.</p> <p>Each plant is unique in terms of age, size and network configuration. Hence, there should be a more careful study on creating a Reliability Performance Index capturing uniqueness of each plant</p>	<p>The Electricity Generating Authority of Thailand (EGAT) recorded an average of 3.79% Planned Outage Factor and 2.29% Unplanned Outage Factor that is equivalent to 13.8 and 8.4 of planned and unplanned outage days per year (CY 2013-2017).</p> <p>The Commission will retain the 50th percentile interim standard. The basis of this is a study by the ERC on the immediately preceding 4-year performance of power plants. The study shows that while</p>

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			<p>is 1 x 10 days or a total of 10 days only.</p> <p>Both Plants have a capacity of 600 MW, however, Plant A has an aggregate of 40 days of Planned Outage Allowance while Plant B only has 10 days. Granting, each of the 4 units of Plant A will not be scheduled for maintenance at the same time. But nevertheless, the absurdity of the above scenario cannot be ignored.</p>	<p>considering technical parameters.</p>	<p>there are power plants that have consistently performed reliably, there are also plants whose performance.</p> <p>Power plants need to deliver the power they have committed to deliver, as this has implications to consumer interest.</p>
<b>93</b>	Global Business Power Corporation	Reliability Performance Index (RPI) using the 50th percentile (Table 15)	<p>Scenario 3: Small Plant vs. Big Plant (Different Capacity)</p> <p>CFB Coal Plants</p> <p>Plant A: 300 MW capacity (2x 150 MW).</p> <p>Plant B: 600 MW capacity (1x 600 MW).</p> <p>Using the proposed RPI (50th percentile), the aggregate Planned Outage Allowance for Plant A is 2 x 10 days or total of 20 days. On the other hand, the aggregate Planned Outage Allowance for Plant B is 1 x 10 days or</p>	<p>There should be a different standard for small plants and big plants. Generally speaking, maintenance and repairs for bigger plants take longer. There should be a stratified RPI for plants to consider size.</p>	<p>Based on the GRMS computed indices, four (4) generating units with capacity higher than 150 MW entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining six (6) generating units are 150 MW and lower capacity. For Unplanned Outage factor, four (4) generating units with capacity higher than 150 MW entered the top ten (10), while the remaining six (6) generating units are 150 MW and lower capacity. This would prove that capacity of the plant should not be</p>

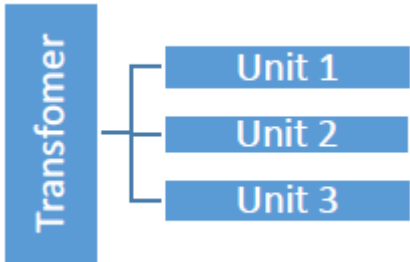
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			a total of 10 days.  Plant A is only 300 MW while Plant B is 600 MW, yet based on the proposed RPI, Plant A will have 2x more Outage Allowance than Plant B.		correlated to outage allowance.
<b>94</b>	Global Business Power Corporation	Reliability Performance Index (RPI) using the 50th percentile (Table 15)	Scenario 4: New vs. Old Plants CFB Coal Plants  Plant A: 300 MW capacity (2x 150 MW) – 2-yr old plant  Plant B: 300 MW capacity (2x 150 MW) – 15-yr old plant  Using the proposed RPI (50th percentile), the aggregate Planned Outage Allowance for both Plants is 20 days, even though Plant A is practically new while Plant B is already 15 years old.	There should be a stratified RPI for plants to consider age of each facility.	Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.
<b>95</b>	Global Business Power	Reliability Performance Index (RPI) using the 50th	Scenario 5: Low Utilization vs. High Utilization	Using a planned outage allowance of 0.1 days per year is highly unlikely considering all	Reliability Performance Indices and Outage Days for Diesel and

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	Corporation	percentile (Table 15)	<p>Diesel Plant</p> <p>Plant A: 60 MW (utilization 30,000,000 kWh per year)</p> <p>Plant B: 60 MW (utilization 100,000,000 kWh per year)</p> <p>Using the proposed RPI (50th percentile), the aggregate Planned Outage Allowance for both Plants is 0.1 days per year, even though Plant A's utilization is only 30% compared to that of Plant B.</p>	<p>factors affecting maintenance of plants.</p> <p>Furthermore, the study should be further refined to look into the utilization rate of various plants. Plants with a higher utilization rate will incur more wear and tear, and accordingly will require more maintenance and repairs. As such, a Diesel Plant's maintenance is based on number of running hours. Considering these, there should be a stratified RPI for plants considering utilization rate and realistic maintenance outage allowance.</p>	Geothermal will be revisited.
<b>96</b>	Global Business Power Corporation	Reliability Performance Index (RPI) using the 50th percentile (Table 15)	 <p>In the above diagram, supposing the</p>	<p>Network configuration plays a major role in occurrence of plant outages. For units with transformers without 1:1 correspondence, an outage of a single transformer will yield to an outage of all individual units.</p> <p>Considering the above, outage calculation shall be based</p>	The indices are applicable for per unit basis.



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			transformer is on outage 10 days, do we understand it correctly that each of Units 1, 2 & 3 will incur outage of 10 days each, or an aggregate outage of 30 days?	exclusively on events affecting the units alone.	
<b>97</b>	KEPCO SPC	Comparison of Results	Hybrid is a comparison of GRMS and NERC-GADS and it will follow the lower values.	In the table of Unplanned Outage of CFBC Plants, please explain why the Hybrid values for PC and CFB were not same with GRMS values while the others are correct.	Hybrid Values of Unplanned Outages for CFBC and PC should be the same as the GRMS Values.
<b>98</b>	MINERGY	Section III. Outage Allowance Application	The benchmarking for reliability performance indices of generating units should be applied prospectively; i.e., the resulting allowed outage days in a year for this undertaking shall by no means modify the already ERC-approved outage allowances provided in their respective PSAs.		The Commission is considering the prospective application of the rules from its promulgation. The effectivity of the rules upon promulgation is already set in the Rules of Practice and Procedures (RPP) of the ERC.
<b>99</b>	CBK Power Company	III / Outage Allowance Application	CBK has existing agreement with NPC (BROT) with provisions on outage allowance which is different from the result of RPI. This is still subject for discussion with NPC/PSALM	We recommend to wait on the comment of NPC/PSALM about this issue.	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance

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					measures.
<b>100</b>	Aboitiz Power	<p>III. Outage Allowance Application</p> <p>For Power Supply Agreement (PSA) Application, if the proposed outage allowance in days per year (or the total of the planned and unplanned outages in the PSA) is different from what is determined under these Rules, the Commission will use in its evaluation of said PSA the outage allowance as proposed or the determined outage allowance (for the specific technology) herein,</p>	<p>Does the application of this Rule affect those previously applied PSAs with no ERC evaluation yet?</p> <p>The PSAs previously signed and/or filed with the ERC for approval already considered the outage allowance in the resulting price of electricity. Thus, we believe that any application of the proposed provision should be prospective.</p> <p>In case that generator has multiple power plants or units, how will the benchmark be applied where the PSA is entered in by the Gen and not by unit/COC?</p> <p>May we be clarified how this will be applied to PSAs entered into by Independent Power Producer Administrators (IPPAs)? IPPs are covered by agreements with set outages as well and these outage</p>		<p>The Commission is considering the prospective application of the rules from its promulgation. The effectivity of the rules upon promulgation is already set in the Rules of Practice and Procedures (RPP) of the ERC.</p> <p>For PSA Application of Generating plants with multiple units, Weighted Average Reliability Performance Index of the generating plant will be used.</p>

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		whichever is lower.	allowances are assumed by the IPPAs.		
<b>101</b>	First Gen Corporation	III. Outage Allowance Application	<p>Note that if the 50th Percentile from Table 15 will be used as the Outage Allowance Benchmark, Zero (0) planned outage days and only 1.8 unplanned outage days will be allowed for Geothermal. As for Hydro, only 9.3 planned outage days and 0.3 unplanned outage days will be allowed. Gas Turbines will only be allowed 8.8 planned outage days and 13.0 unplanned outage days. We find these outage caps impractical and too restrictive.</p> <p>Consider different scheduled outage days as per OEM recommendation (with classification whether the plant will undergo a minor or major inspection, and depending on issues encountered during the operation of the plants); or Require generating plants to submit their annual planned maintenance and use it as basis. Restricting scheduled outage days without considering the need of the power generating unit's maintenance schedule could back-fire to the stability of power supply worse than</p>	<p>Consider different scheduled outage days as per OEM recommendation (with classification whether the plant will undergo a minor or major inspection, and depending on issues encountered during the operation of the plants); or Require generating plants to submit their annual planned maintenance and use it as basis.</p>	Reliability Performance Indices and Outage Days for Diesel and Geothermal will be revisited.

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			<p>what was experience from March-June this year (2019). Lower planned outage days may result to rushed maintenance work which could cause poor quality and safety issues to arise. Also, having a lower unplanned outage allowance could force a “run to fail” mode of plant operation or running the unit until the next scheduled outage; this could lead to more operation problems.</p> <p>Also, the proposed outage benchmarks effectively penalize, instead of incentivize, power plants with historically minimal outage days.</p> <p>The effect of restriction may be good, initially, as some generating units forego or cut short their normal maintenance schedule in order to comply with the issued guidelines. However, this is a perilous situation as power generating units will be forced to operate inefficiently and will be prone to tripping.</p>		
<b>102</b>	Global Business Power	III. Outage Allowance Application	Use of cap per technology for all power plants.	Reliability of generating units is a matter of technical considerations hence these	The Commission sets an interim standard in order to set clear parameters that will guide

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	Corporation			<p>parameters should be considered including age, size, resource, technology, etc. The 50th percentile does not take into consideration these parameters and hence cannot be used as catch all cap for each technology.</p> <p>Furthermore, outage allowance have already been examined and approved by the Honorable Commission based on technical specification of each plant.</p>	Generating Plants in the development and implementation of reliability performance measures.
<b>103</b>	PIPPA	Outage Allowance Applications in Power Supply Agreements (PSAs)	This refers to the proposal that the proposed reliability benchmarks or standards shall be used in the PSA evaluation. When the PSAs were negotiated or subjected to CSP (as the case may be), each PSA component is a factor of the resulting price. There is a possibility that some generators put more weight on higher outage allowance to lower their price.	We would like to be clarified how the Honorable Commission will use the lower outage days in the PSA approval.	<p>PSAs include provisions on outage allowances which the GenCo utilizes in the determination of their billing determinants, which serve as among the bases for the determination of the generation rate. Leaving the outage allowance to the discretion of the GenCos may not be reasonable to the captive electric customers.</p> <p>If the ERC will authorize a higher no. of allowable outage days, the billing determinant decreases,</p>

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					resulting to a higher rate and therefore the consumers will have to pay for the capital even for those days that the generating plant will not be operating because those outage days have been allowed.
<b>104</b>	VIVANT	III. Outage Allowance Application	<p>“Interim” presumes that there is a permanent performance benchmark that will be forthcoming.</p> <p>If approved, how long does the Commission foresee the Interim Performance Benchmark to be effective?</p> <p>Will the PIB resolution be applied prospectively?</p> <p>If yes:</p> <ol style="list-style-type: none"> <li>1. How will the approved outage allowances that are in approved PSAs be treated? Will the parties be required to amend them?</li> <li>2. Since the allowed outage days, as proposed, has not been</li> </ol>	<p>The Commission must clarify if the Interim Performance Benchmark will be applied retroactively.</p> <p>If the Interim Performance Benchmark will be applied prospectively, for all existing approved PSAs, the Commission must clarify if there is any impact on the already-approved outage allowances.</p> <p>In addition, for future PSA applications, since the impact of complying with the stringent Interim Performance Benchmark on the PSA will be on financials, the Commission must take into account the additional cost of complying with the Interim</p>	The Commission is considering the prospective application of the rules from its promulgation. The effectivity of the rules upon promulgation is already set in the Rules of Practice and Procedures (RPP) of the ERC.

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			<p>contemplated under existing PSAs, will the Commission take the stringent outage allowance into account when it evaluates the operating expenditures, capital recovery fee that the standards will entail?</p> <p>For existing PSAs, will the Commission allow additional recovery in tariff under a “change in circumstance/law” provision, because of unforeseen additional capex or opex to comply with the Interim Performance Benchmark?</p>	Performance Benchmark.	
<b>105</b>	GNPOWER	Section III – Outage Allowance Application	<p>The outage allowance in “days” may not be applicable to all generators per technology as some measure it on hourly basis.</p> <p>Also, it will be prudent if the outage allowance will also be anchored to the “Commercial Declaration” to be consistent with the commercial terms in the power supply agreements.</p>	If the PSA is measured on hours per year then the proposed indices must also be based on hours per year; OR A separate table is proposed for hourly outage allowance per year	The separate table for Outage hour per year will be provided.
<b>106</b>	SMC Global Power	III. Outage Allowance Application	What would ERC do if outage allowance is greater than allowable		The intention is to use the outage allowance that will be considered

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			<p>outage allowance set for each technology of the Generating Plant?</p> <p>Instead of penalizing those who cannot comply, we suggest to give incentives to those plants who were able to comply.</p>		<p>as the allowable maximum outage allowance days in the PSAs.</p> <p>Setting allowable outage days sets clear parameters and guidance for power plant operators. Consequently, the maintenance discipline arising from this will limit outage days, thus creating additional revenues for power plant operators.</p>
<b>107</b>	SMC Global Power	<p>III. Outage Allowance Application</p> <p>xxx</p> <p>For Power Supply Agreement (PSA) application, if the proposed outage allowance in days per year (or the total of the planned and unplanned outages in the PSA) is different from what is determined under</p>	<p>Once the proposed Rules is implemented, it should not affect the existing PSAs.</p>	<p>For New Power Supply Agreement (PSA) application, if the proposed outage allowance in days per year (or the total of the planned and unplanned outages in the PSA) is different from what is determined under these Rules, the Commission will use in its evaluation of said PSA the outage allowance as proposed or the determined outage allowance (for the specific technology) herein, whichever is lower.</p>	<p>The Commission is considering the prospective application of the rules from its promulgation.</p>



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		these Rules, the Commission will use in its evaluation of said PSA the outage allowance as proposed or the determined outage allowance (for the specific technology) herein, whichever is lower.			
<b>108</b>	Millennium Energy / PanAsia Energy	Title	How do you define Equivalent Outage days? Is this related to Equivalent Hours defined in Resolution 21 Series of 2016?  4.22 Equivalent Hours (E). The summation of the number of hours a unit was in a time category involving unit derating, expressed as equivalent hours of full outage at maximum capacity.	Please clarify.	Equivalent Outage Days is the corresponding number of days of the Outage Factor. This can be calculated by multiplying The Outage Factor by 365 days (Represents 365 days in a year).
<b>109</b>	Millennium Energy / PanAsia		There were two terms that were used in the proposal, equivalent outage days and outage days. Is there a		Equivalent Outage Days and Outage Days are the same.

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	Energy		difference between the two? If there is, kindly define it in the proposed benchmarking resolution.		
<b>110</b>	Millennium Energy / PanAsia Energy	1.4 Definition of Terms  Unplanned Outage Factor	Is Outside Management Control (OMC) Outage accounted in the computation of Unplanned Outage Factor?	This should not be included in the computation since the generation company does not have control over this outage.	The computed Indices do not include Outside Management Control Outage.  Thus, any outage that are beyond the control of the generating unit will not be included in the accumulation of generating units' Unplanned Outage.
<b>111</b>	Millennium Energy / PanAsia Energy	Section 1.4 – Definition of Terms	The terms Forced Outage Factor and Maintenance Outage Factor are not mentioned anywhere in the draft Interim Benchmark document.	We suggest that these terms be removed.	Forced Outage Factor and Maintenance Outage Factor are combined in to Unplanned Outage Factor.
<b>112</b>	Millennium Energy / PanAsia Energy		The term Conventional Generating Plant has been used a couple of times in the document but is not defined.	We suggest the inclusion of the term Conventional Generating Plant in the definition of terms with the definition which is consistent with the PGC.  Conventional Generating Plant – Any Generating Plant which is not a Variable Renewable Energy	Agree to adopt as follows:  Conventional Generating Facility – Any Generating Unit/Plant, which is not a Variable Renewable Energy Generating Facility.

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				Generating Plant.	
<b>113</b>	Millennium Energy / PanAsia Energy		How are Combined Cycle Power Plants categorized following the proposed benchmarking resolution?		For Combined Cycle Power Plants, Module or Block that is composed of Gas Turbine (s) and Steam Turbine is considered as one generating unit.
<b>114</b>	Millennium Energy / PanAsia Energy		Is the age of the generating unit taken into consideration in setting the benchmark?	<p>As a generating unit ages, its efficiency degrades. This must also be taken into consideration in coming up with the benchmark.</p> <p>We suggest that there should be two separate benchmarks based on the accumulated service life of the plant, i.e. 0-15 years old power plants and more than 15 years power plants.</p>	Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant's age and its performance.
<b>115</b>	Millennium Energy /		What will be the implication of this benchmark to the Generation	For further clarification.	In case of non-compliance by any

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	PanAsia Energy		<p>Companies if the set limits are breached?</p> <p>Will penalties be imposed or will reference be made to the pertinent PSA provision?</p>		<p>person or entity with any of the provisions of these Rules, the ERC shall review such non-compliance and may issue a Notice of non-compliance with an Order to comply and to explain within seven (7) days the reason or reasons therefor. After the Notice and Order shall have been issued by the ERC and the person or entity still refuses and fails to comply within the reglementary period of what is incumbent upon it/him, the ERC shall impose fines and penalties pursuant to ERC Resolution NO.3, Series of 2009.</p>
<b>116</b>	Millennium Energy / PanAsia Energy	Section 2.1, Table 1 – Weighted Average Reliability Performance Indices per Technology for CYs 2015-2019	The proposed Interim Benchmark for Reliability Performance Indices and Equivalent Outage Days Per Year of Generating Unit was based on the generator reliability performance data established by the Grid Management Committee (GMC) through the Generator Reliability Monitoring System (GMRS) application. The same	Please qualify the reference used in the document regarding the weighted average reliability indices for the gas turbine group.	For consideration to include Gas Turbine in Combined Cycle Group.

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			<p>application was used by the GMC in coming up with its own annual report on Reliability Performance Indices of Generating Plants. We understand that the gas turbine power plant was included as a separate technology by the GMC starting with the 2017 report. The reason is that the Avion power plant consisting of two (2) generating units, which is the only plant registered in the gas turbine group according to the said GMC report, started its commercial operation and participation in the WESM only on 26 September 2016. Prior to that, the gas turbine power plant was lumped together with the combined cycle power plant category.</p>		
<b>117</b>	Millennium Energy / PanAsia Energy		<p>The said data used may not really describe the reliability performance of all generating units because of other important factors such as:</p> <ol style="list-style-type: none"> <li>1. Different age of generating units</li> <li>2. Unique Technical</li> </ol>	Please consider other factors and not rely on the submitted reports alone.	Based on the GRMS computed indices, five (5) generating units more than fifteen (15) years of age entered the top ten (10) generating units with highest Planned Outage Factor, while the remaining five (5) generating units are less than fifteen (15) years. For Unplanned

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			<p>3. Characteristics of each generating units. Type of service being provided.</p>		<p>Outage factor, three (3) generating units more than fifteen (15) years of age entered the top ten (10), while the remaining seven (7) generating units are less than fifteen (15) years. GRMS data does not support the argument of a strong correlation of a plant’s age and its performance.</p>
<b>118</b>	Millennium Energy / PanAsia Energy	<p>Section 2.5, Table 11 – Reliability Performance Indices per Technology (NERC-GADS vs. GRMS)</p> <p>Section 2.5 Table 13 – Combination of GRMS and NERC GADS Reliability Performance Indices</p> <p>Section 2.6, Table 15 – Result of Setting the</p>	<p>The proposed Interim Benchmark considered the generator reliability performance data from the period January 2015 to April 2019 in computing the reliability performance indices and the equivalent number of outage days per year per technology. However, in the case of the gas turbine power plant, less than three (3) years of reliability performance data is available. It is, therefore, debatable if the GRMS data for gas turbine technology is comparable with its counterpart in the 5-year (2013-2017) NERC-GADS reliability performance indices data.</p>	<p>It is recommended to compute the revised reliability performance indices for gas turbine technology using the complete cycle OEM recommended preventive maintenance schedule and its reliability performance data, inclusive of data from Millennium GTPP. Please note that the MGTPP Unit No. 4 was commissioned in August 1993 and is a much older generating unit compared to the Avion Units 1 and 2. Hence, it is important to consider the reliability performance of MGTPP in</p>	<p>For consideration to include Gas Turbine in Combined Cycle Group.</p>

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		Interim Benchmark at the 5 Options	<p>More importantly, the GRMS reliability performance indices for gas turbine technology are based solely on data from two generating units belonging to the same power plant. The proposed Interim Benchmark mentioned that the computed reliability performance indices per technology are important to determine the actual performance of generating units in the group where they belong. In the absence of reliability performance data from other gas turbine power plants, it does not make sense or it may be illogical to benchmark the reliability performance of a generating unit against its own set of data.</p>	<p>establishing the reliability performance indices benchmark for the gas turbine group.</p>	

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<b>119</b>	Millennium Energy / PanAsia Energy	Section 2.6 – Comparison of Results	It is commendable that power plants in the Philippines are able to surpass the reliability performance of their North American counterparts in spite of the fact that the former are more stressed in terms of the number operating hours, as shown by their respective service factors. The only exception is the oil-fired thermal group consisting solely of Malaya, which is understandable considering that this plant has been in service for at least forty (40) years and has outlived its economic life. Applying the 50th percentile of reliability performance indices of generating units as interim benchmark will stretch the operational stresses already being experienced by many generating units.	Please clarify how Table 15 was derived or developed.	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.



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<b>120</b>	Millennium Energy / PanAsia Energy	Table 15	The proposed allowable value is in outage days. The planned outage days for combined cycle and gas turbine is not enough to cover the recommended preventive maintenance schedule (PMS) of the original equipment manufacturer (OEM). In the gas turbine operation, there are various recommended types of PMS to complete a full cycle PMS. Usually all these recommended PMS will occur in a period of two to three-five years. These PMS have duration ranging from 7 to 60 days.	It is suggested that operators of combined cycle and gas turbine (simple cycle) which both utilize gas turbine technology be allowed to submit the recommended PMS of its OEM where the planned outage factor can be formulated.	The Commission sets an interim standard in order to set clear parameters that will guide Generating Plants in the development and implementation of reliability performance measures.