Guideline on National Energy Award 2025 (NEA 2025)

for

Renewable Energy Category

Organiser

KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

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Suruhanjaya Tenaga
Energy Commission

AKAUN AMANAH INDUSTRI BEKALAN ELEKTRIK (AAIBE)

GUIDELINE ON NATIONAL ENERGY AWARD 2025 (NEA 2025) FOR RENEWABLE ENERGY CATEGORY

1. BACKGROUND AND OBJECTIVES

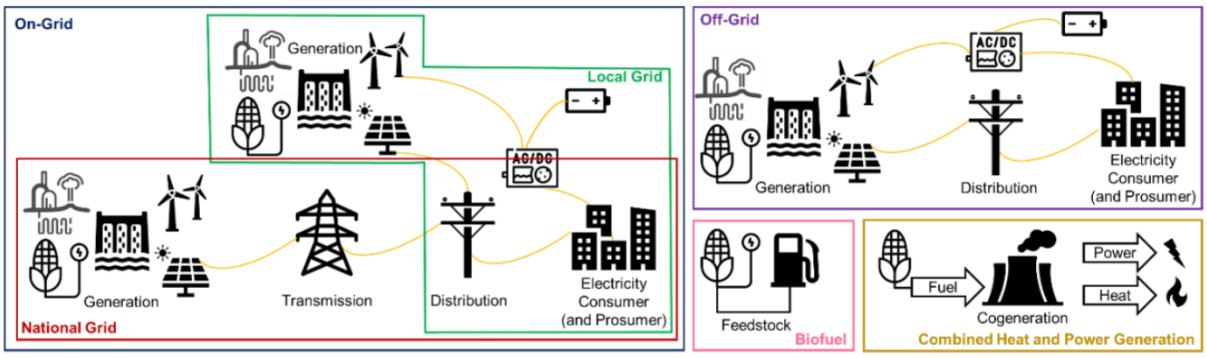
The National Energy Awards (NEA) is a strategic platform in promoting energy and nurturing the mind of innovating. NEA is the cornerstone of a joint venture between government and private sector for R&D, innovation in products, solutions and commercialization towards the sustainable green economy. NEA also is an essential platform for promoting the development of Renewable Energy (RE), Energy Efficiency (EE) and Green Energy (GE) innovation focusing on local products and services. The objectives of NEA specifically for Renewable Energy Category are:

i) To highlight the best practices and pioneering work in renewable energy (RE) projects in Malaysia.
ii) To recognize the efforts of the public and private sectors across Malaysia in renewable energy (RE) and shall manifest a positive impact to Malaysian as well as to steer green technology awareness on a broad level across the different facets of society.
iii) To encourage all sector participation in adopting and implementing innovative and creative renewable energy (RE) projects to enhance business growth.
iv) To promote renewable energy (RE) as another form of energy resource, thus to complement and to improve environmental quality in Malaysia.
v) Exchanging knowledge and experience in development and maintenance of the renewable energy (RE) projects.

2. COMPETITION CATEGORIES AND DEFINITIONS

The sub-categories for Renewable Energy Category under NEA 2025 will refer to the sub-categories competed in ASEAN Energy Award for Renewable Energy Project.
The categories are:

1) Off Grid Categories (Power and Thermal)
2) On Grid (National Grid and Local Grid)
3) Combine Heat and Power (CHP) generations and
4) Biofuels



The categories and definitions are described below:

2.1. Off Grid

The off-grid category refers to projects not connected to the national power grid. The projects may be located in regional or remote areas. The examples of the off-grid projects may include a combination of technologies and methods to generate reliable power and reduce costs, such as using storage systems, multiple RE technologies, charge controllers, instrumentation, safety equipment, and cohabitation with agricultural (agrivoltaics) or fishery infrastructures (floating PV on fishpond, powering fishermen boat). The general categorization of off-grid RE projects is defined below:

a) Power: Electricity generated from renewable energy (RE) sources

i) Typical applications in remote areas without electricity supply/national grid access.
ii) Not fitted to any electricity distribution system.
iii) Stand-alone systems, e.g., solar home systems, solar lighting solutions, biogas mini-grids, solar mini-grids, hydro mini-grids, etc
iv) RE project with an installed capacity of less than 10 MW.
v) It is for own use of the premise itself, e.g., household electrification, industrial cogeneration, powering telecommunication infrastructure, water pumping for irrigation or other public uses, drying of agricultural products using an electric heater, etc.
vi) Not applicable for thermal applications at households, hotels, hospitals, industry, commercial facilities, etc., where access to the national grid is available.

b) Thermal: Thermal energy generated from renewable energy (RE) sources e.g. solar hot water, drying, biogas for cooking, biomass for steam, solar pump, etc.

i) Direct use of heat, not through electricity-powered equipment.
ii) Typical applications in remote areas where there is no access to the electricity supply.
iii) The heat is used for heating/cooling/preserving purposes.
iv) Examples of projects are solar for cooking, biogas from animal husbandry, wood stove, which come from renewable resources etc.
v) Not applicable for solar water heating applications at households, hotels, hospitals, industrial and commercial facilities, etc., where access to electricity is available.

2.2. On Grid

On-grid category refers to projects that are connected to the national power grid. The projects may be located in regional or remote areas connected to transmission or distribution systems. The example of the projects may include a combination of technologies and methods to improve the dispatch ability of generated electricity, improve profitability, or reduce maintenance and operation costs, such as using storage system, multiple RE technologies, innovative financing schemes, supply and demand side management, digitalization, and crossover implementation in other sectors (e.g., RE+ agriculture, fishery, textile, etc.). The general categorization of on-grid RE projects is defined below:

a) National Grid: **Electricity generated from all types of RE sources, including hydro (floating PV on hydropower reservoir and run-off river) and waste-to-energy, where the project is connected to the national grid.**

i) Power system supply is provided and/or maintained by the national or state-owned utility governed by an act and its regulations or by Independent Power Producers (IPPs), which have a Power Purchase Agreement (PPA).
ii) RE project with an installed capacity larger than 5 MW.
iii) RE electricity project with connection to the grid for only emergency purposes.
iv) Not applicable for direct heat or mechanical energy uses that do not involve power generating process.
v) Not applicable for own use of the premise itself and rooftop-installed facilities, e.g., solar rooftop.

b) Local Grid: **Electricity is generated from all RE sources, including hydro (floating PV on hydropower reservoir and run-off river) and waste-to-energy, where the supply is for the remote communities/ a number of houses/ clusters (local grid).**

i) Power system supply is provided and/or maintained by the national, provincial, or state-owned utility, which is governed by an act and its regulations, or by Independent Power Producers (IPPs) which have a Power Purchase Agreement (PPA) or owned by local government or communities through partnerships with commercial or public sector partners (community-led RE concept)
ii) RE project with an installed capacity smaller than 5 MW.
iii) Project primary, primary objective is to increase the electrification in the remote area (not for commercial purposes).
iv) Not applicable for direct heat or mechanical energy uses that do not involve power generating process.

v) Applicable for own use of the premise itself and rooftop-installed facilities, e.g., solar rooftop which is designated for compliance with voluntary global initiatives (e.g., RE100) and electricity bill saving by prioritising the use of RE-generated electricity from its own system over utility-produced or by exporting the excess electricity to the distribution line of the national or local grid if the net-metering scheme is available.

2.3. Combined heat and power (CHP) generation

The combined heat and power (CHP) generation category refers to projects that produce electricity and thermal energy from biogas, bioenergy (modern biomass), or solar at higher efficiencies than the conventional separate type. The wasted energy is in the form of power loss, and heat is applied to facility loads in the form of hot water, chilled water, process heating, or steam. Unlike cofiring, where renewable and non-renewable fuels are combined for power generation, CHP specifically captures and utilises the waste heat from electricity generation for additional thermal applications, thereby maximizing overall energy efficiency and reducing waste. Exemplary CHP projects may include a combination of technologies and fuels to improve the facility's efficiency, such as applying a heat recovery unit and using waste as feedstocks. The general categorisation of CHP projects is defined below:

a) Heat and power are generated from biogas or biomass with a closed-loop heat recovery system.
b) Biogas feedstocks come from the biological degradation of organic wastes, such as landfill gas, sewage digester gas, and animal waste digester gas.
c) Biomass feedstocks come from forest residues, wood wastes, urban wood waste, crop residues, wastewater treatment biogas, municipal solid waste (MSW), manure biogas landfill gas, and food processing residue.
d) Solar heat comes from concentrated solar power or other advanced technologies.
e) No limitation on electricity or heat generating capacity. It could include a prototype-sized project.

2.4. Biofuel

The biofuels category refers to projects that involve the conversion process from renewable biological sources to liquid or solid fuels to help meet transportation and electricity generation needs. The example of biofuel projects may utilize conversion technologies and feedstock extraction methods to enable sustainable production. The general categorization of biofuel projects is defined below:

a) Feedstocks from food crops (e.g., corn, wheat, sugar beet, sugar cane, palm oil, rapeseed oil, soya bean oil, sunflower oil, etc.), energy crops (e.g., switchgrass, poplar, willow, jatropha, camelina, miscanthus, etc.), or waste (e.g., waste wood, food waste, MSW, manure, corn stover, straw, etc.).

b) The project demonstrates lower greenhouse gas (GHG) emissions than fossil fuel alternatives through reliable life cycle assessment (LCA).
c) The project implements sustainability practices, such as lower production cost, competitiveness with fossil fuels, not disturbing food and water security, and promoting local economic development.

2.5. Special Submission

Special submission refers to a special project which research, study or development of innovative use of emerging RE technologies (including R&D project and renewable waste-to-energy project) which could be applied to accelerate the energy transition and strengthen energy resilience, as well as not being commercialize yet.

3. NUMBER OF WINNERS PER CATEGORY

The numbers of winners per category are listed in table below:

Name of Category	No. of Winners per Category
Off grid - Thermal	1 winner, 1 runner up
Off-grid - Power	1 winner, 1 runner up
On-grid – National Grid	1 winner, 1 runner up
On-grid - Local Grid	1 winner, 1 runner up
Combined heat and power (CHP)	1 winner, 1 runner up
Biofuels	1 winner, 1 runner up

4. CRITERIA AND DISTRIBUTION OF SCORES

Panel of Judges will evaluate each project entries/report submission and shall give evaluation scores in view of the substance of the contents and information presented therein in the submitted entry documents in reference to sets of established criteria.

The maximum total point score number is 100% marks based on the criteria distribution. Tables below show the criteria with corresponding maximum percentage point allocation:

4.1. Off Grid, On Grid & Cogeneration categories

No	Criteria	Description	Aspects	Distribution of Score (%)
1.	**Originality** *Able to highlight the concept of idea, novelty, replicability, and implementation approach.*	Able to demonstrate a unique and novel concept of the project's design, emphasizing on having creative solutions and innovative features.	a. Design	a. 4% b. 4% c. 2% **Total: 10%**
		Able to showcase a highly practical and adaptable application of the original concept in real-world scenarios	b. Application	
		Present a strategic and novel approach during development and innovations in the project's execution	c. Approach	
2.	**Environment Consideration** *Clearly describe the positive environmental impact and advantage from the project physically*	Provide a comprehensive water management strategy	a. Waste management	a. 5% b. 5% c. 5% **Total: 15%**
		Provide quantitative data on the avoided greenhouse gas emissions	b. Avoided GHG emission	
		Elaborate the positive and sustainable impact that the project has on the local ecosystem	c. Impact to ecosystem	
3.	**Social Consideration** *Clearly describe the positive social impact*	Able to demonstrate and showcase a high level of community awareness, acceptance and support	a. Community awareness, participation and acceptance	a. 3% b. 4% c. 3%

	and advantage to surrounding communities	Able to provide impactful CSR initiatives and demonstrate high commitment to social responsibility	b. Corporate Social Responsibility program	**Total: 10%**
		Articulate and highlight tangible benefits to local residents, emphasizing inclusivity and community engagement	c. Benefit to user, community and country	
4.	**Technical, Economic and Market Consideration** *Able to explain the technology advantages on reliability, durability, economically and accountability*	Able to show a high performance and standardize technical design through detailed technical specifications, emphasizing on the installed capacity and overall system design	a. Technical design (installed capacity, system)	a. 6%
		Showcase the project's effectiveness by presenting a clear and accurate data comparing rated capacity and actual performance	b. Technical performance (rated capacity & actual capacity)	b. 6%
		Able to showcase the economic viability and efficiency of the project through comprehensive financial metrics	c. Investment indicator (*investment cost, IRR, ROI, Payback period & effectiveness ratio-cost/MW)	c. 6%
		Able to provide a comprehensive description of the project's financial scheme to show the project's long-term viability and sustainability	d. Financial scheme/livelihood project (fully/semi-commercial, government, PPP)	d. 2%

		Able to provide the funding sources to finance the project	e. Funder (government and non-government)	e. 2% f. 2% g. 2% h. 2% i. 2% **Total : 30%**
		Provide a realistic and comprehensive assessment of the market potential over the next five years, considering the scalability and market trends	f. Market size (potential within 5 years)	
		Able to highlight participation of the local manufacturing/content	g. Local Manufacturing/ content of system	
		Give a clear measure of the project's impact by providing significant contribution of fossil energy avoided through the project	h. Amount of fossil energy avoided (ktoe, etc.)	
		Provide a realistic projection of its lifespan and have a well-thought-out plan for the project longevity and sustainability	i. Life of project	
5.	**Operation and Maintenance Scheme** *Satisfactory description on the optimization and preservation approach to maintain the project as a successful*	Able to specify and showcase the project's operational excellence through its operation hours, as well as highlighting its optimization strategies to maximize efficiency	a. Operation hours	a. 5% b. 3%
		Able to provide clear maintenance plan, detailing on the preventive and corrective measures to ensure consistent performance	b. Maintenance scheme (in-house, contracted out service, government, other)	

	benchmark and practical	Able to provide additional measures to address specific challenges, emphasizing on information regarding specific training or after-sales services	c. Other maintenance measures (training, after-sales service)	c. 3% d. 4%
		Able to showcase innovative approaches and comprehensive strategies to achieve energy conservation and cost reduction, along with the quantitative results of the energy conservation and cost reduction generated from the project	d. Energy conservation and cost reduction system	e. 4% f. 1%
		Able to show a strong commitment to support the inclusion of local services in the operation and maintenance	e. Local service content	**Total: 20%**
		Able to demonstrate adherence to ISO standards for both environmental sustainability and product/service quality	f. ISO for Environment and Quality	
6.	**Replicability** *Satisfactory description on the practical implementation to be adopted in other projects*	Able to showcase how the project is relevant, impactful, and efficient from its features	a. Relevance, impact and efficiency	a. 3%
		Provide detailed information on the cost-effectiveness, along with the potential cost savings and efficiency gains from the project	b. Cost effectiveness (No/Low/High cost)	b. 3% c. 4%
		Able to showcase the long-term sustainability strategies by considering economic, social, and environmental factors	c. Sustainability of project	**Total: 10%**

7.	**Presentation of Document (Figures, Tables and Photos** *Presentably shown meaningful fact and evident that would reflect clearness on the elaboration*	Provide clear figures, tables, and photos to give evident and help elaborate the project details	a. Figures, tables and photos	a. 3%
		Provide a concise and informative title and/or abstract that accurately represent the essence of the project	b. Title/brief of description (abstract)	b. 2% **Total: 5%**

4.2. Biofuels category

No	Criteria	Description	Aspects	Distribution of Score (%)
1.	**Originality** *Able to highlight the concept of idea, novelty, replicability, and implementation approach*	Able to demonstrate a unique and novel concept of the project's design, emphasizing on having creative solutions and innovative features.	a. Design	a. 4% b. 4% c. 2% **Total : 10%**
		Able to showcase a highly practical and adaptable application of the original concept in real-world scenarios	b. Application	
		Present a strategic and novel approach during development and innovations in the project's execution	c. Approach	

2.	**Environment Consideration** *Clearly describe the positive environmental impact and advantage from the project physically*	Provide a comprehensive water management strategy	d. Waste management	a. 5% b. 5% c. 5% **Total: 15%**
		Provide quantitative data on the avoided greenhouse gas emissions	e. Avoided GHG emission	
		Elaborate the positive and sustainable impact that the project has on the local ecosystem	f. Impact to ecosystem	
3.	**Social Consideration** *Clearly describe the positive social impact and advantage to surrounding community*	Able to demonstrate and showcase a high level of community awareness, acceptance and support	a. Community awareness, participation and acceptance	a. 5% b. 5% c. 5% **Total: 15%**
		Able to provide impactful CSR initiatives and demonstrate high commitment to social responsibility	b. Corporate Social Responsibility program	
		Articulate and highlight tangible benefits to local residents, emphasizing inclusivity and community engagement	c. Benefit to user, community and country	
4.	**Technical, Economic and Market Consideration**	Able to show a high performance and standardize technical design through detailed technical specifications, emphasizing on the installed capacity and overall system design	a. Technical design (installed capacity, system)	a. 5%

	Able to explain the technology advantages on reliability, durability, economically and accountability	Showcase the project's effectiveness by presenting a clear and accurate data comparing rated capacity and actual performance	b. Technical performance (rated capacity & actual capacity)	b. 4% c. 4%
		Able to showcase the economic viability and efficiency of the project through comprehensive financial metrics	c. Investment indicator (*investment cost, IRR, ROI, Payback period & effectiveness ratio-cost/MW)	d. 2%
		Able to provide a comprehensive description of the project's financial scheme to show the project's long-term viability and sustainability	d. Financial scheme/livelihood project (fully/semi commercial, government, PPP)	e. 2%
		Able to provide the funding sources to finance the project	e. Funder (government and non-government)	f. 2% g. 2%
		Provide a realistic and comprehensive assessment of the market potential over the next five years, considering the scalability and market trends	f. Market size (potential within 5 years)	h. 2%
		Able to highlight participation of the local manufacturing/content	g. Local Manufacturing/ content of system	i. 2% **Total: 25%**

		Give a clear measure of the project's impact by providing significant contribution of fossil energy avoided through the project	h. Amount of fossil energy avoided (ktoe, etc.)	
		Provide a realistic projection of its lifespan and have a well-thought-out plan for the project longevity and sustainability	i. Life of project	
5.	**Operation and Maintenance Scheme** *Satisfactory description on the optimization and preservation approach to maintain the project as a successful benchmark and practical.*	Able to specify and showcase the project's operational excellence through its operation hours, as well as highlighting its optimization strategies to maximize efficiency	a. Operation hours	a. 5% b. 3%
		Able to provide clear maintenance plan, detailing on the preventive and corrective measures to ensure consistent performance	b. Maintenance scheme (in -house, contracted out service, government, other)	c. 3%
		Able to provide additional measures to address specific challenges, emphasizing on information regarding specific training or after-sales services	c. Other maintenance measures (training, after-sales service)	d. 2%
		Able to showcase innovative approaches and comprehensive strategies to achieve energy conservation and cost reduction, along with the quantitative results of the energy conservation and cost reduction generated from the project	d. Energy conservation and cost reduction system	e. 3% f. 1% g. 3%
		Able to show a strong commitment to support the inclusion of local services in the operation and maintenance	e. Local service content	**Total: 20%**

		Able to demonstrate adherence to ISO standards for both environmental sustainability and product/service quality	f. ISO for Environment and Quality	
6.	**Replicability** *Satisfactory description on the practical implementation to be adopted in other projects.*	Able to showcase how the project is relevant, impactful, and efficient from its features	a. Relevance, impact and efficiency	d. 3% e. 3% f. 4% **Total: 10%**
		Provide detailed information on the cost-effectiveness, along with the potential cost savings and efficiency gains from the project	b. Cost effectiveness (No/Low/High cost)	
		Able to showcase the long-term sustainability strategies by considering economic, social, and environmental factors	c. Sustainability of project	
7.	**Presentation of Document (Figures, Tables and Photos** *Presentably shown meaningful fact and evident that would reflect clearness on the elaboration*	Provide clear figures, tables, and photos to give evident and help elaborate the project details	a. Figures, tables and photos	c. 3% d. 2% **Total: 5%**
		Provide a concise and informative title and/or abstract that accurately represent the essence of the project	b. Title/brief of description (abstract)	

4.3. Special Submission

No	Criteria	Description	Aspects	Distribution of Score (%)
1.	**Objective of project** *Able to explain clearly the project objectives and their contribution to local economy and environmental improvement*	Demonstrates significant positive impact on the local economy, including job creation, business growth, and economic stimulation	a. Contribution to local economy	a. 4% b. 4% **Total : 8%**
		Shows substantial benefits to the local environment, such as improvements in air and water quality, reducing greenhouse gas emissions, and enhancement of local green spaces	b. Contribution to local environment	
2.	**Description of project** *Able to highlight the concept of idea, novelty, replicability, and implementation approach*	Able to demonstrate a unique and novel concept of the project's design	a. Design	b. 7% c. 7% d. 7% **Total : 21%**
		Able to showcase a highly practical and adaptable application of the original concept in real-world scenarios	b. Application	

		Present a strategic and novel approach during development and innovations in the project's execution	c. Approach	
3.	**Tangible & Intangible effects/ impacts** *Clearly describe the community acceptance, technology advantages, and benefits to local economy*	Able to demonstrate and showcase a high level of community awareness, acceptance, and support	a. Community awareness, participation and acceptance	a. 7% b. 7% c. 7% **Total : 21%**
		Illustrates advanced technological design, high performance, and significant contribution to reducing fossil energy use	b. Technical design, performance, and avoided fossil energy (ktoe, etc)	
		Showcases the project's scalability, participation to local manufacturing, and enhancement of local service sectors	c. Market size, local manufacturing, and service content	
4.	**Sustainability** *Clearly describe the positive impact to*	Able to show significant positive impacts on the ecosystem, including emission reduction and effective waste management	a. Impact to ecosystem (emission avoidance, waste reduction, etc.)	a. 7%

	environment and the approach to maintain the project as successful benchmark and practical	Demonstrates the project's ability to significantly reduce energy use and operational costs	b. Energy reduction and cost reduction potential	b. 7% c. 7%
		Provides a comprehensive maintenance strategy, including training programs and after-sales services, ensuring long-term operational sustainability	c. Maintenance measures (training, after-sales service)	**Total : 21%**
5	**Replicability** *Satisfactory description on the practical implementation to be adopted in other projects*	Able to showcase how the project is relevant, impactful, and efficient from its features	a. Relevance, impact, and efficiency	a. 7% b. 7% c. 7% **Total : 21%**
		Provide a detailed information on the cost-effectiveness, along with the potential cost savings and efficiency gains from the project	b. Cost effectiveness (No/Low/High cost)	
		Able to showcase the long-term sustainability strategies by considering economic, social, and environmental factors	c. Sustainability of project	

6	**Presentation of Documentation (Figures, Tables and Photos)** *Presentably shown meaningful fact and evident that would reflect clearness on the elaboration*	Provide clear figures, tables, and photos to give evident and help elaborate the project details	a. Figures, tables and photos	a. 4% b. 4% **Total : 8%**
		Provide a concise and informative title and/or abstract that accurately represent the essence of the project	b. Title/brief of description (abstract)	

5. RULES AND FORMAT OF SUBMISSION

5.1. Submission Format

Standardization of project entries/report submission in high resolution would make easy to capture the important points:

i) Format (A4, Times New Roman 12 cpi, topics sequential).
ii) Figures and tables in high resolution (not screen capture).
iii) Number of pages for Off Grid, ON Grid, Biofuels & Cogeneration Category - total 15 pages + attachment (no limit) and for Special Submission Category – total 10 pages + attachment (no limit)
iv) Project entries/report submission must be submitted using NEA 2025 Report Submission Form.
v) Noncompliance/incomplete documents or information will automatically get a reduction 5% from total score.

5.2. Submission Procedure

i) All project entries/report submission must be submitted in softcopy (by email) and six (6) original-colored hardcopies which are sealed in an envelope. The submission of all documents is address to the NEA 2025 Secretariat.
ii) Authorization by the owner for NEA Committee and Secretariat to visit the project must be submitted along with the complete report documentations. This can be done via Certification and Endorsement Form attached in Report Submission Form
iii) After the submission deadline, the NEA 2025 secretariat shall review and ensure that all submissions are in full compliance with the rules and requirements of the competition.

5.3. Pre-Qualification Requirement

i) The fuel source of the project must originate from renewable sources e.g. biomass, biogas, hydro (run-off river), solar, wind, geothermal, etc.
ii) Number of minimum or maximum installed capacity is required.
iii) The project is in operation at least **1 (one) year** from the Commercial Operating Date (COD).
iv) There is no minimum capacity requirement.