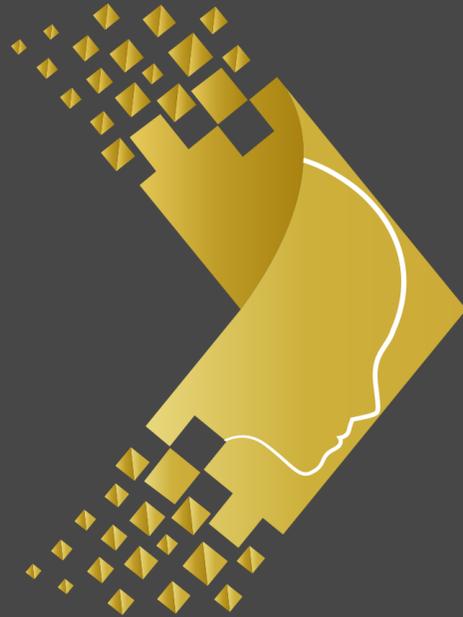




UNITED ARAB EMIRATES
MINISTRY OF ENERGY & INFRASTRUCTURE



جائزة البحث والابتكار
Research and Innovation Award

Second Edition 2024 - 2025

Under the patronage of H.E. Suhail Mohamed Al Mazrouei
Minister of Energy and Infrastructure





Vision

Sustainable global leadership in energy, water, infrastructure, housing and transportation.



Mission

Organizing, developing and enhancing competitiveness in energy, mining, water resources, land and sea transportation, roads, utilities, housing, building, construction, sustainability of investment as well as the optimal use of partnerships, technology and advanced sciences, also adopting global innovative solutions to improve the quality of life of the society.

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About the Award

To consolidate the culture of government creativity and innovation, the Ministry of Energy and Infrastructure announces the launch of the 2nd Research and Innovation Award as an accelerator to provide concrete, pioneering, and innovative solutions to challenges in all sectors of energy, water, infrastructure, transport, and housing. The award will also support the achievement of the Ministry's objectives and the national strategic directions of the United Arab Emirates and reveal the most prominent and latest applied research projects utilizing innovative solutions. Furthermore, it will explore future opportunities that will support addressing current and future challenges in energy, water, infrastructure, transport, and housing to enhance the quality of life and well-being.

Award Objectives



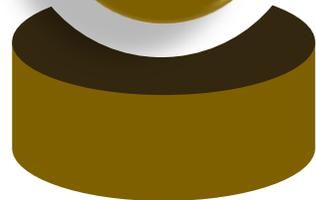
The 2nd Research and Innovation Award aims to:

1. Encourage researchers and partners to play an active and positive role in conducting studies in energy, water, infrastructure, transport, and housing.
2. Sustain the Ministry's leading role in activating partnership and cooperation with various institutions and strategic partners in energy, water, infrastructure, transport and housing.
3. Adopt recommendations related to providing innovative solutions to address the existing challenges in the Ministry and the expected future challenges as well as alignment with global trends.

Participants Categories

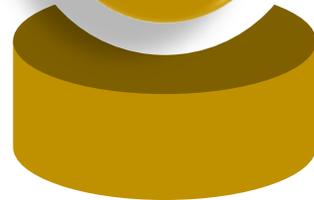
The Research and Innovation Award targets the following participants:

01



Government organizations

02



Private Sector
(companies specialized in
energy, infrastructure, and
transport)

03



Startups

04



Universities and R&D
Centers

05



Individual Researchers
and Experts

Nomination Terms and Conditions

Eligibility:

- Government entities, companies, universities and research centers, or Individuals can submit their applied research projects for the award.
- The applicant must be the owner of the applied research project.
- The prize will be awarded to the winner in each category: Government organizations, Private sector, Universities and R&D Centers, and Startups. In the individual researcher & expert and youth categories, the prize will be awarded to the person.

Originality:

- Applications for the award will only be considered for applied research projects with novelty that have measurable results and impact.
- The applied research projects should showcase originality, creativity, and a unique perspective in addressing challenges or opportunities within the field.

Innovation:

- The submitted applied research projects should demonstrate a significant level of innovation.
- The extent and effectiveness of collaboration between different entities or stakeholders will add an advantage during the evaluation process.

Compliance and Disqualification:

- The submitted project must align with the topics of the award.
- Applications that fail to meet the requirements and conditions of the award will be disqualified.
- The applied research or project topics must be within the Ministry's operational fields and applicable to be implemented in the Ministry projects.
- Applications that do not meet the requirements and conditions of the award and do not comply with the forms will be excluded.
- The award accepts applied research that has achievements for a period of two years prior to the date of announcement of the award.

Nomination Terms and Conditions

Recommendation letter:

- If applying under the “Individual researchers and experts or youth categories”, the participant confirms that the work is owned by the participant (Requires to agree on the Intellectual Property Declaration and does not require a recommendation letter).
- If applying under “Government organizations, Private sector, Universities and R&D Centers, and Startups” each application should be supported by an official letter from the sponsor institution(s) headed to the Ministry of Energy and Infrastructure with the subject Research and Innovation Award 2024.

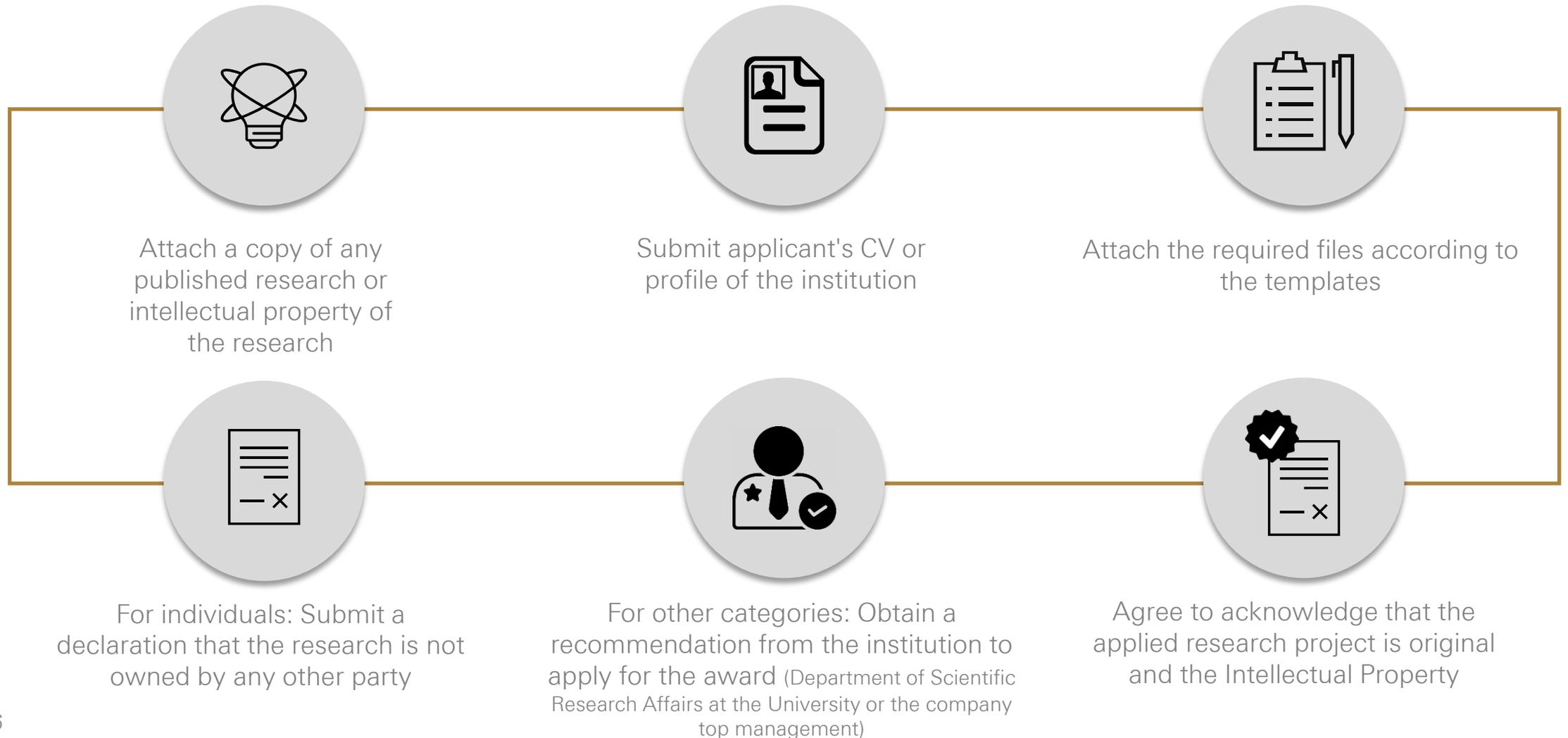
Language and Submission:

- The submitted application must be in Arabic or English.
- All submissions must adhere to the Research and Innovation Award design templates.
- A PowerPoint presentation must be included along with the submission in Arabic and English.
- The applicant must attach all evidence and results supporting the applied research project that demonstrates performance and impact measurement.

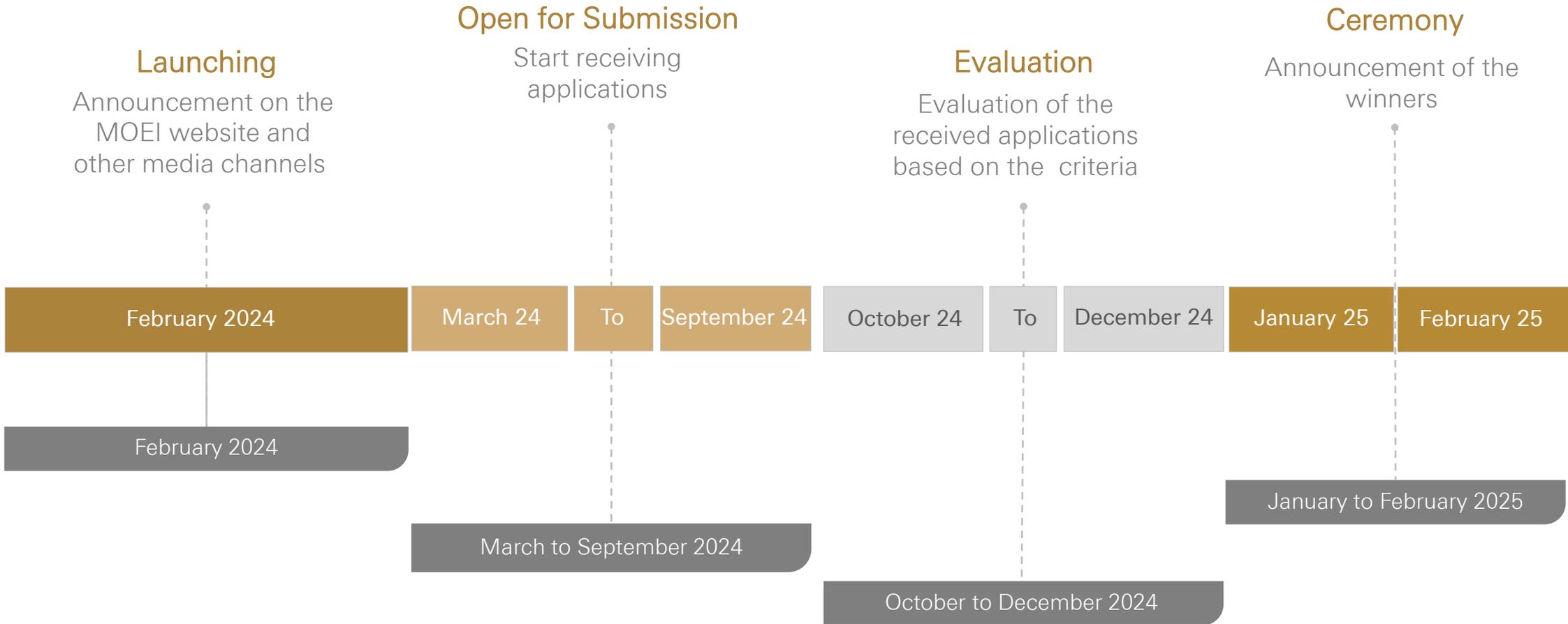
*Applied research project:

An applied research project is a focused development aimed at solving practical problems or addressing specific challenges in the real world. It applies knowledge to generate solutions with direct relevance that often involves interdisciplinary collaboration. The goal is to produce actionable outcomes through practical implementation of the significant findings and measure the positive impact. Through this Award, the ministry is pursuing the most innovative applied research projects in the fields of energy, water, infrastructure, transport, and housing.

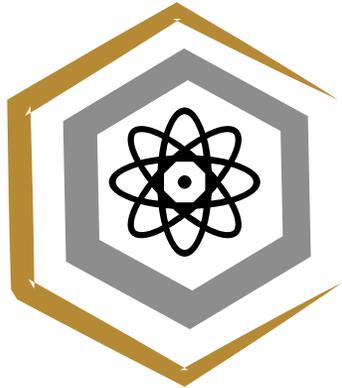
Requirements



Timeline of the Award



Award Categories and Topics



Energy Solutions for
Better Future



Water security
and sustainability



Cities of the
Future



Revolution on
Wheels



Housing Era



Energy Solutions for Better Future

This category could recognize breakthrough research in the following topics:

- ✔ Achieving access to clean and optimal energy production, preservation, and management through the application of optimal technologies and strategies or by adopting best practices.
- ✔ Developing renewable energy solutions to increase production capacity in the United Arab Emirates, aiming to triple renewable energy by 2030.
- ✔ Developing an innovative technology for low-emission hydrogen production technologies and enhancing the growth of this sector to support the local market.
- ✔ Improving energy efficiency in high-consumption sectors in the United Arab Emirates.
- ✔ Enhancing the efficiency and security of electrical networks through the application of unique new technologies.
- ✔ Strengthening the resilience of energy systems to cope with natural disasters and emergencies.
- ✔ Developing low-carbon energy solutions to reduce carbon emissions in the energy sector.

Water security and Sustainability

This category includes the following topics:

- ✔ Applying artificial intelligence technologies in the field of desalination and water treatment.
- ✔ Applications of the circular economy in the field of water.
- ✔ Sustainable management of surface and groundwater.





Cities of the Future

This category includes the following topics:

- ✓ Develop unique city infrastructure designs that support sustainability and futuristic urban planning.
- ✓ Demonstrate the implementation of smart energy networks, smart buildings, and smart traffic systems to improve the quality of life.
- ✓ Develop the role of strategic policies and legislation based on studies and best practices that enable building future cities, including developing strategies and farmwork for data integration between different entities.
- ✓ Develop innovative systems and methods to enhance prediction of future maintenance plans for buildings and roads.
- ✓ Develop intelligent and effective disaster response strategies while minimizing potential damage through forecasting and artificial intelligence models.
- ✓ Providing comprehensive digital twin solutions for smart cities, including the impact measurement phase for sustainability and quality of life standards.

Revolution on Wheels

This award is given to research that serves the smart mobility of the land and sea transport sectors to reach green and sustainable mobility that addresses current and future challenges:

- ✓ Developing policies and innovative procedures for Autonomous Vehicles (AVs) and road facilities across UAE based on best practices and experiences.
- ✓ Provide efficient logistics solutions that significantly improve supply chain efficiencies by leveraging innovative technology and methodologies for transport management.
- ✓ Public transportation advancements and services that set a new standard for sustainability in transportation.
- ✓ Providing research addressing traffic congestion challenges with the best and most appropriate economically feasible solutions.
- ✓ Developing innovative road asphalt specifications and materials to enhance climate change resilience. The study should demonstrate the material's improvement through the provision of approved datasheets.
- ✓ Autonomous ships and marine technology.
- ✓ Developing port infrastructure according to sustainable practices.



Housing Era



This award is given to the research that serves the housing sector to provide innovative housing solutions, including the following topics:

- ✔ Enhancing Housing Stability for Indigenous Residents based on applied research studies
- ✔ Provide solutions that help to develop the housing system in the UAE based on applied research studies
- ✔ Provide solutions that use emerging technologies with the aim of anticipating the size of housing demand and future challenges
- ✔ Develop an innovative solutions to rationalize residential land consumption in the future.

Key Targets



The key target goal to be achieved in all applied research projects

The applied research projects must be directly related to one of the national goals mentioned below or others, supported by clear results showing the expected contribution and impact from these targets.

Energy Solutions for Better Future

- Increase the clean energy capacity from 14.2 GW to 19.8 GW by 2030.
- Achieve 1.4 million tons of hydrogen per year by 2031 and 15 MTPA by 2050.
- Enhancing energy efficiency in highly intensive sectors in the UAE, with a goal of reducing energy consumption by 45% by 2050.
- Increasing individual and institutional energy consumption efficiency by 42-45% compared to 2019
- Achieve a reduction in carbon dioxide to net zero emissions by 2050.

Key Targets



The key target goal to be achieved in all applied research projects

The applied research projects must be directly related to one of the national goals mentioned below or others, supported by clear results showing the expected contribution and impact from these targets.

Water security and sustainability

- Reduce total water demand by 21% and increase the reuse of treated water to 95%, develop the capability to provide 91 liters of water per person per day in emergency situations, achieve a 73% reuse rate of treated wastewater.
- Develop the capability to provide 91 liters of water per person per day in emergency situations.
- Achieve a 73% reuse rate of treated wastewater.
- Reduce CO2 emissions by 100 million metric tons from the water desalination process.

Key Targets



The key target goal to be achieved in all applied research projects

The applied research projects must be directly related to one of the national goals mentioned below or others, supported by clear results showing the expected contribution and impact from these targets.

Advancements in Modern Infrastructure

- Reducing emissions by approximately 10 million tons annually in the building.
- Increase the proportion of certified green buildings to 50% by 2030.
- 50% recycling of construction waste.

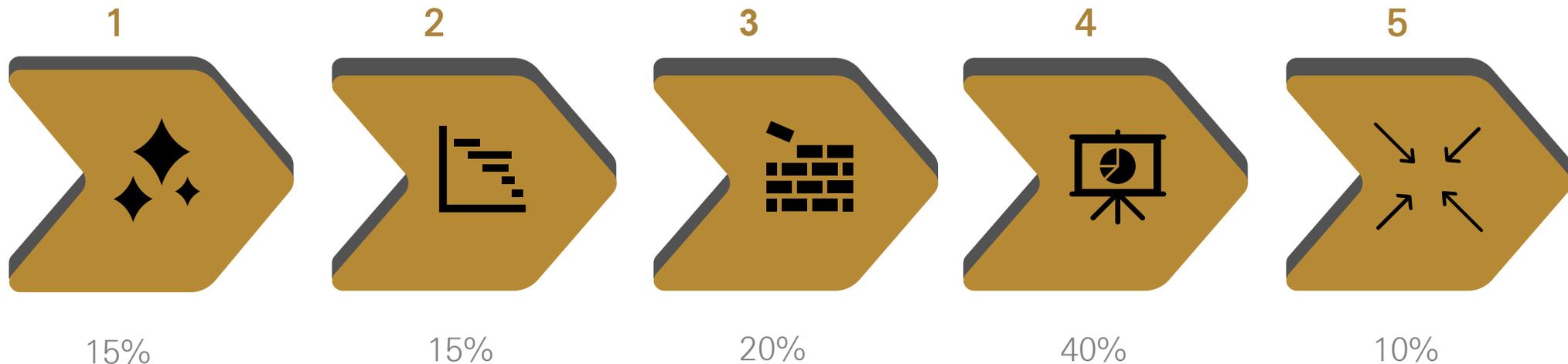
Revolution on Wheels

- Increase the share of EVs to 50 percent of total vehicles on the UAE's roads by 2050.
- Ensure that 90% of the population lives within a 10-minute walk of public transportation by 2030.

Evaluation Criteria

The applied research or project is evaluated based on four main criteria:

- **First criterion:** The idea's originality, clear challenge formulation, and goal statement compared with other solutions
- **Second criterion:** The innovation of design and planning during the implementation process
- **Third criterion:** Execution performance
- **Fourth criterion:** Results & Findings
- **Fifth criterion:** Measuring impact



Evaluation Criteria

Government, Private Companies and Startup Categories

First criterion: Idea (15%)

This criterion focuses on the ideation stage of the applied research or project that includes:

- The originality of the idea and the provision of a solution by analyzing other solutions in the same field.
- Analyze the research gap and success factors.
- Clarity of goals, objectives and deliverables for the required outcome.
- Identify the involved stakeholders and analyze how they are affected.
- Review the available best practices and literature.

Second criterion: The innovation of design and planning during the implementation process (15%)

This criterion focuses on research methodology to achieve objectives along with how to determine the resources required to complete the work, this includes:

- Explain the elements of innovation and excellence in planning and implementation.
- Determine the necessary resources, skills and human capabilities.
- Develop a work plan, research methodology and detailed tasks for implementation.
- Efficiency of financial planning, available resources, and financial analysis.
- Analyze the potential risks associated with implementation and how to overcome them.

Evaluation Criteria

Third criterion: Execution performance (20%)

This criterion focuses on project execution and operational level, including defining work plans and activities and how to manage work to ensure project completion. It includes:

- Mechanism and steps for implementation, follow-up and review.
- Use administrative and scientific methods or new technologies in the applied research or project.
- Provide the necessary support and required resources from concerned parties.
- Provide the project management plan and project continuity.

Fourth criterion: Results & Findings (40%)

This criterion focuses on presenting the achieved results and contribution to achieving the required goals, it includes:

- Determine performance measurement indicators and methods of measuring and evaluating results.
- Verify the result and its positive impacts on the government or private entity and its sustainability.
- Entity feedback on the applied research project, including external stakeholders affected by the achieved results.
- The extent of the possibility of adopting the applied research in one of the Ministry of Energy and Infrastructure projects.

Evaluation Criteria

Fifth criterion: Measuring impact (10%)

It may include:

- The extent to which the research is linked to national strategy initiatives on enhancing quality of life and national well-being.
- Measuring the impact of research/project findings on quality and sustainability of life and community happiness.
- The extent to which the research project affects local and global factors, including but not limited to clarifying the impact of the study on environmental, economic (local and global), security, social, and other aspects.

Universities and R&D Centers Category

First criterion: Idea (15%)

This criterion focuses on the ideation stage of the applied research or project that includes:

- The originality of the idea and the provision of a solution by analyzing other solutions in the same field.
- Analyze the research gap and success factors.
- Clarity of goals, objectives and deliverables for the required outcome.
- Identify the involved stakeholders and analyze how they are affected.
- Review the available best practices and literature.

Evaluation Criteria

Second criterion: The innovation of design and planning during the implementation process (15%)

This criterion focuses on research methodology to achieve objectives along with how to determine the resources required to complete the work, this includes:

- Explain the elements of innovation and excellence in planning and implementation.
- Determine the necessary resources, skills and human capabilities.
- Develop a work plan and detailed tasks for implementation.
- Efficiency of financial planning, available resources, and financial analysis.
- Analyze the potential risks associated with implementation and how to overcome them.

Third criterion: Execution performance (20%)

This criterion focuses on project execution and operational level, including defining work plans and activities and how to manage work to ensure project completion. It includes:

- Explain the research methodology or new techniques implemented in the applied research.
- Mechanism and steps for implementation, follow-up and review.
- Provide the necessary support and required resources from the university or R&D centers.
- Provide the project management plan and project continuity.

Evaluation Criteria

Fourth criterion: Results & Findings (40%)

This criterion focuses on presenting the achieved results and contribution to achieving the required goals, it includes:

- Determine performance measurement indicators and methods of measuring and evaluating results.
- Verify the result and its positive impacts on the government or private entity and its sustainability.
- The extent of the possibility of adopting the applied research in one of the Ministry of Energy and Infrastructure projects.
- Obtaining intellectual property or patent or published research in local or global platforms.

Fifth criterion: Measuring impact (10%)

It may include:

- The extent to which the research is linked to national strategy initiatives on enhancing quality of life and national well-being.
- Measuring the impact of research/project findings on quality and sustainability of life and community happiness.
- The extent to which the research project affects local and global factors, including but not limited to clarifying the impact of the study on environmental, economic (local and global), security, social, and other aspects.

Evaluation Criteria

Individual Researchers and Experts, and Youth Innovators Categories

First criterion: Idea (15%)

This criterion focuses on the ideation stage of the applied research or project that includes:

- The originality of the idea and the provision of a solution by analyzing other solutions in the same field.
- Analyze the research gap and success factors.
- Clarity of goals, objectives and deliverables for the required outcome.
- Identify the stakeholders involved or possibly could be involved in the research and analyze how they are affected.
- Review the available best practices and literature.

Second criterion: The innovation of design and planning during the implementation process (15%)

This criterion focuses on research methodology to achieve objectives along with how to determine the resources required to complete the work, this includes:

- Explain the elements of innovation and excellence in planning and implementation.
- Determine the necessary resources, skills and human capabilities.
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Committees and Jury

The award committees are composed of thought leaders, decision makers, and specialists from government and private sector institutions and academia who judge all evaluation results with transparency and credibility.



Rewards and Honors

The first-place project for each participant category in each field shall be granted a cash reward determined by the Award Committee in recognition of the efforts made.

Awards are announced and distributed with a trophy and certificate of appreciation.



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Thank you

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