Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

SDG7 Energy Compact of Ayodhya Development Authority
A next Decade Action Agenda to advance SDG7 on sustainable energy for all, in line with the goals of the Paris Agreement on Climate Change

SECTION 1: AMBITION

1.1. Ambitions to achieve SDG7 by 2030. ***[Please select all that apply, and make sure to state the baseline of each target]***
(Member States targets could be based on their NDCs, energy policies, national five-year plans etc. targets for companies/organizations could be based on their corporate strategy)

☐ 7.1. By 2030, ensure universal access to affordable, reliable and modern energy services.	Target(s): Time frame: Context for the ambition(s):
☐ 7.2. By 2030, increase substantially the share of **renewable energy** in the global energy mix.	**7.2.1 Target:** Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels **Time frame:** 2021-2022 **Baseline**: Uttar Pradesh is currently facing an acute power shortage. Inspite of energy supply management, UP has a peak demand deficit of about 15%, whiles its energy shortage is about 8 percent. **Context for the ambition:** Uttar Pradesh Solar Policy, 2017 has set the objective and guidelines to reduce the power shortage rising due to high demand. ADA has planned to promote Ayodhya as a Solar City. This will fulfill the energy demand of the city as well as reduce dependency on conventional energy sources. Project Name – Solar City Ayodhya Present energy demand of Ayodhya city is about 165 MWp (~ 280 million units per year). Uttar Pradesh Solar Policy, 2017 has set the objective and guidelines to reduce the power shortage rising due to high demand. To achieve this, 130 MW of solar energy will be supplied by installing solar plants (land for which has been identified) while 27 MW will be received from solar panels installed on rooftops of private and public buildings. The remaining power will be received from solar plants to be installed at other places. Initiatives under Phase I of the project:- ● Residential Roof Top Solar of 1 KWp and 2 KWp, for 5000 and 10000 identified consumers respectively ● Institutional / Commercial Roof Top Solar (about 5 MWp) provided with net metering facility shall be extended to these types of buildings apart from residential to attract the implementation. ● Solar Street Lighting along Parikrama Road (1 MWp)

		• Establishment of solar power plant on barren land pieces (held by the government) for meeting the additional capacity requirements (~135 MWp) • Thermal technology based solar steam cooking system for 'Sita Rasoi', which will have the capacity to feed 10,000 people per day Initiatives under Phase II of the project:- • 9 Ha of land is earmarked for Ground Mounted Solar Park at the proposed Green Field Township (1200 acres) • 100 MWp solar park in 400 acres of land is identified in neighboring district – Jalanul • 301 acres of surface area has been identified as part of the Canal Top Solar initiative and another 4,500 acres of floating solar park on Saryu River • Solar energy will be used in street lights, high masts, fans and passenger waiting rooms as well as public convenience centers	
		7.2.2 Target: 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031 Time frame: 2021-2031 Baseline: Zero AC Electric Buses in 2021 Context for the ambition(s): With provision of dedicated energy efficient vehicles, encouraging usage of public transport rather than private vehicles. Project Name – Public Transport from entry gates to the important nodes of the City As part of the introduction of public transport electric vehicle initiative under the direction of Uttar Pradesh Electric Vehicle Policy 2019; • CO_2 saved per electric bus per year will be 210.56 Tonnes • Targeting a potential annual revenue of INR 10 Lakhs by selling carbon credits	
		7.2.3. Target: 100% hydrogen fuel-cell usage for illumination of entire temple premises Time frame: 2021-2022 Baseline: No hydrogen fuel-cell based powering for temple premises. Context for the ambition(s): Uttar Pradesh Solar Policy, 2017 has set the objective and guidelines to reduce the power shortage rising due to high demand. Project Name: Solar City Ayodhya • Hydrogen fuel cells are type of electrochemical cells which generate electricity by oxidation and reduction reactions within the cell. • These are used as a source to separate hydrogen and oxygen from the water • Solar power generated from the PV cells is fed to the electrolyzer for generating the Hydrogen and thus it will feed the fuel cell.	
	☐ 7.3. By 2030, double the global rate of improvement in energy efficiency.	Target(s): NA Time frame: NA Context for the ambition(s): NA	

Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

☐ 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	Target(s): NA Time frame: NA Context for the ambition(s): NA
☐ 7.b. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programs of support.	Target(s): NA Time frame: NA Context for the ambition(s): NA

1.2. Other ambitions in support of SDG7 by 2030 and net-zero emissions by 2050. *[Please describe below e.g., coal phase out or reforming fossil fuel subsidies etc.]*

1.2.1 Target: Planning for identified Greenfield Township in Ayodhya

Time frame: 2021-2028

Baseline: Planning for the project is in progress

Context for the ambition(s): Establishing a self-sufficient township covering 1200 acres in terms of energy consumption, waste management and resource utilization

Project Name – Greenfield Township Planning in Ayodhya

- Plotting system: Approximately 150 residentials, 40 commercial, 50 muths and more than 100 national & international avenues
- Mitigation measures for Water Quality
- Dual plumbing system for reuse and recycle of water
- The wastewater generated from the project to be treated in Sewage Treatment Plant which will be reused for irrigation and flushing purpose
- Planning for pedestrian friendly city with provision of Non-Motorised Lanes (54.66 Km) in the city
- Solar water heaters in all the hotels, guest houses, rest houses, nursing home and hospitals, hostel, Universities, college, schools, Police and Army barracks, community centres, banquet halls and residentials houses of plot size 500 sqm or more

Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

SECTION 2: ACTIONS TO ACHIEVE THE AMBITION

2.1. Please add at least one key action for each of the elaborated ambition(s) from section 1. ***[Please add rows as needed].***

7.2.1 Target: Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels Action plan: 1. To generate energy of 165 MWp as per the current energy demand (2021) 2. 5000 domestic consumers have been considered for installation of 1 KWp roof top solar panels and 10,000 consumers have been considered for 2 KWp roof top solar panels 3. To encourage the solar rooftop in the residential buildings, schemes for financially weaker backward consumers to be introduced. 4. Policy decision mandating roof top solar for commercial buildings and providing net metering option to enable and attract the commercial establishment for faster adoption of rooftop solar initiative. 5. Solar panels are already installed on roof tops of Government buildings such as District Magistrate Office and Vikas Bhawan. 6. Setting up of solar park on land, canal and river body 7. Solar Street Lighting along Parikrama Road (1 MWp) Initiatives under Phase I of the project:- ● Residential Roof Top Solar of 1 KWp and 2 KWp, for 5000 and 10000 identified consumers respectively ● Institutional / Commercial Roof Top Solar (about 5 MWp) provided with net metering facility shall be extended to these types of buildings apart from residential to attract the implementation. ● Establishment of solar power plant on barren land pieces (held by the government) for meeting the additional capacity requirements (~135 MWp) ● Thermal technology based solar steam cooking system for 'Sita Rasoi', which will have the capacity to feed 10,000 people per day Initiatives under Phase II of the project:- ● 9 Ha of land is earmarked for Ground Mounted Solar Park at the proposed Greenfield Township (1200 acres) ● 100 MWp solar park in 400 acres of land is identified in neighboring district – Jalanul ● 301 acres of surface area has been identified as part of the Canal Top Solar initiative and another 4,500 acres of floating solar park on Saryu River ● Solar energy will be used in street lights, high masts, fans and passenger waiting rooms as well as public convenience centers	***2021 and 2022***
7.2.2 Target: 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031 Action plan: 1. As per the requirement, by 2031 approximately 193 Electric buses to be introduced 2. Modern depot with in-house charging infrastructure 3. Smart bus stops with real time passenger information system and digital billboards to boost effective communication to commuters	***2021 and 2031***
7.2.3. Target: 100% hydrogen fuel cell usage for illumination of entire temple premises Action plan: 1. Use of solar power to operate electrolyser in order to extract hydrogen thus to power fuel cells for street lighting	***2021 and 2022***
1.2.1 Target: Planning for identified Greenfield Township in Ayodhya Action plan: 1. Solar plants to provide electricity to the entire township. 2. Using modern techniques for proper segregation, recycle and reuse of waste.	***2021 and 2028***

Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

3. Sewerage water to be treated and used for the purposes like garden watering, fountains etc. 4. Elimination of basement parking to retain natural terrain. Modulated internal levels of stilt parking, minimizing cut and fill. 5. Special measures to minimize intervention in existing natural surroundings and soil disturbance	

SECTION 3: OUTCOMES

3.1. Please add at least one measurable and time-based outcome for each of the actions from section 2. ***[Please add rows as needed].***

Outcome	*Date*
7.2.1 **Target:** Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels ● Rooftop solar project will help operationalize over 20% of Ayodhya's current power requirements through solar sources. ● This project could yield savings of Rs. 3.13 Cr. per year on account of reduction in AT&C losses.	NA
7.2.2 **Target:** 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031 ● CO_2 saved per electric bus per year will be 210.56 Tonnes ● Targeting a potential annual revenue of INR 10 Lakhs by selling carbon credits	NA
7.2.3. **Target:** 100% hydrogen fuel cell usage for illumination of entire temple premises ● Under the project, entire temple premises will be powered using hydrogen fuel cell.	NA
1.2.1 **Target:** Planning for identified Greenfield Township in Ayodhya ● Self-sufficient township in terms of energy consumption, waste management and resource utilization.	NA

SECTION 4: REQUIRED RESOURCES AND SUPPORT

4.1. Please specify required finance and investments for each of the actions in section 2.

- Total financial outlay is under preparation.

Funding Support:

- Low interest rate loan options and on a PPP based model in order to establish solar energy projects
- Grants are required for pilot project; (i) Smart energy monitoring system, (ii) Procurement of electric/hydrogen buses, (iii) Waste-to-energy

Technical Support:

In capacity strengthening, know-how transfer and access to national & international private players with respect to; a) solar energy, b) electric & hydrogen vehicles plus charging stations, c) energy efficiency mechanism, d) processing of waste into a fuel source, f) project financing instrument & opportunities and g) any other modern energy services.

4.2. [For countries only] In case support is required for the actions in section 2, please select from below and describe the required support and specify for which action.

[Examples of support for Member States could include: Access to low-cost affordable debt through strategic de-risking instruments, capacity building in data collection; development of integrated energy plans and energy transition pathways; technical assistance, etc.]

☐Financing	***NA***
☐ In-Kind contribution	***NA***
☐ Technical Support	***NA***
☐ Other/Please specify	***NA***

SECTION 5: IMPACT

5.1. Countries planned for implementation including number of people potentially impacted.

The above initiatives are planned for Ayodhya city having a total projected population of 11,98,800 (Residing – 11,58,800, Floating – 40,000) in 2021 under the jurisdiction of Ayodhya Development Authority area.

5.2. Alignment with the 2030 Agenda for Sustainable Development – Please describe how <u>each</u> of the actions from section 2 impact advancing the SDGs by 2030.
[up to 500 words, please upload supporting strategy documents as needed]

1. SDG 11: Sustainable Cities and Communities
   1.2.1 Target: Planning for identified Greenfield Township in Ayodhya
   Impact:
   a) Development of high-quality living space with state of the art infrastructure.
   Document Link: DPR under preparation
2. SDG 12: Responsible Consumption and Production
   7.2.1 Target: Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels
   Impact:
   a) The extensive use of solar energy as an alternative source of energy generation will reduce dependency on fossil fuel.
   7.2.3. Target: 100% hydrogen fuel cell usage for illumination of entire temple premises
   Impact:

a) Hydrogen fuel cells provide an inherently clean source of energy with no adverse environmental impact

Document Link: Ayodhya Solar City

3. SDG 13: Climate Action

7.2.2 Target: 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031

Impact:

a) Introduction of electric buses will reduce the diesel auto-rickshaw trips running in the city hence lowering pollution level.
b) An electric bus emits 70% lower carbon than diesel or natural gas fuel, hence preventing global warming.
c) Such buses do not lead to noise pollution.

Document Link: Public Transport from Entry Gates to City

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how each of the actions from section 2 align with the Paris Agreement and national NDCs (if applicable) and support the net-zero emissions by 2050.

[up to 500 words, please upload supporting strategy documents as needed]

1. 1.2.1 Target: Planning for identified Greenfield Township in Ayodhya

   Impact:

   a) Development of high-quality living space with state of the art infrastructure.

   Document Link: DPR under preparation
2. SDG 12: Responsible Consumption and Production

   7.2.1 Target: Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels

   Impact:

   a) The extensive use of solar energy as an alternative source of energy generation will reduce dependency on fossil fuel.

   7.2.3. Target: 100% hydrogen fuel cell usage for illumination of entire temple premises

   Impact:

   a) Hydrogen fuel cells provide an inherently clean source of energy with no adverse environmental impact.

   Document Link: Ayodhya Solar City
3. SDG 13: Climate Action

   7.2.2 Target: 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031

   Impact:

a) Introduction of electric buses will reduce the diesel auto-rickshaw trips running in the city hence lowering pollution level.
b) An electric bus emits 70% lower carbon than diesel or natural gas fuel, hence preventing global warming.
c) Such buses do not lead to noise pollution.

Document Link: Public Transport from Entry Gates to City

SECTION 6: MONITORING AND REPORTING

6.1. Please describe how you intend to track the progress of the proposed outcomes in section 3. Please also describe if you intend to use other existing reporting frameworks to track progress on the proposed outcomes.

Implementation committee is formed under guidance of District Commissioner for monitoring of all the projects.

1. 7.2.1 Target: Supply 130 MW of solar energy to Solar City Ayodhya by installing solar plants and another 27 MW from solar rooftops on private and public buildings to reduce dependency on fossil fuels

- Energy generation via solar plant will be tracked at different stages; a) installation b) energy output monitoring c) energy distribution/consumption d) smart metering e) check for energy leakage f) error rectification g) upgradation, all in a periodic manner in a log report format.

2. 7.2.2 Target: 193 AC Electric Buses with fast charging capability and future proof expandable battery pack to enhance higher terrestrial coverage by 2031
   - Electric bus fleet for public transport will be facilitated by; a) Applying for Central Government Grant under FAME 2, b) Tender for inviting bus manufacturer, c) Manufacturer Bid evaluation, d) Procurement of buses e) Bus operation through PPP model f) Bus operator bid evaluation g) KPI motoring of operator
3. 7.2.3. Target: 100% hydrogen fuel cell usage for illumination of entire temple premises
   - Hydrogen fuel cell-based lighting will be scrutinized for its timely power consumption and the lumen of output.

SECTION 7: GUIDING PRINCIPLES CHECKLIST

Please use the checklist below to validate that the proposed Energy Compact is aligned with the guiding principles.

I. Stepping up ambition and accelerating action - Increase contribution of and accelerate the implementation of the SDG7 targets in support of the 2030 Agenda for Sustainable Development for Paris Agreement

I. 1. Does the Energy Compact strengthen and/or add a target, commitment, policy, action related to SDG7 and its linkages to the other SDGs that results in a higher cumulative impact compared to existing frameworks?

☒Yes ☐No

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? ☒Yes ☐No

I.3. Does the Energy Compact consider inclusion of key priority issues towards achieving SDG7 by 2030 and the net-zero emission goal of the Paris Agreement by 2050 - as defied by latest global analysis and data including the outcome of the Technical Working Groups? ☒Yes ☐No

II. Alignment with the 2030 agenda on Sustainable Development Goals – Ensure coherence and alignment with SDG implementation plans and strategies by 2030 as well as national development plans and priorities.

II.1. Has the Energy Compact considered enabling actions of SDG7 to reach the other sustainable development goals by 2030? ☒Yes ☐No

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps? ☒Yes ☐No

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? ☒Yes ☐No

III. Alignment with Paris Agreement and net-zero by 2050 - Ensure coherence and alignment with the Nationally Determined Contributions, long term net zero emission strategies.

III.1. Has the Energy Compact considered a timeframe in line with the net-zero goal of the Paris Agreement by 2050? ☐Yes ☐No N/A India does not have a net-zero target

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? ☒Yes ☐No

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? ☐Yes ☐No N/A India does not have a net-zero target

IV. Leaving no one behind, strengthening inclusion, interlinkages, and synergies - Enabling the achievement of SDGs and just transition by reflecting interlinkages with other SDGs.

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? ☒Yes ☐No

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? ☒Yes ☐No

IV.3. Does the Energy Compact consider measures that address the needs of the most vulnerable groups (e.g. those impacted the most by energy transitions, lack of energy access)? ☒Yes ☐No

Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

V. Feasibility and Robustness - Commitments and measures are technically sound, feasible, and verifiable based a set of objectives with specific performance indicators, baselines, targets and data sources as needed.

V.1. Is the information included in the Energy Compact based on updated quality data and sectoral assessments, with clear and transparent methodologies related to the proposed measures? ☒Yes ☐No

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? ☒Yes ☐No

V.3. Has the Energy Compact considered issues related to means of implementation to ensure feasibility of measures proposed (e.g. cost and financing strategy, technical assistant needs and partnerships, policy and regulatory gaps, data and technology)? ☒Yes ☐No

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

Energy Compact for Ayodhya City, Uttar Pradesh, India

8.2. Lead entity name (for joint Energy Compacts please list all parties and include, in parenthesis, its entity type, using entity type from below)

Ayodhya Development Authority

8.3. Lead entity type

☐ Government ☒ Local/Regional Government ☐ Multilateral body /Intergovernmental Organization

☐ Non-Governmental Organization (NGO) ☐ Civil Society organization/Youth ☐ Academic Institution /Scientific Community

☐ Private Sector ☐ Philanthropic Organization ☐ Other relevant actor

8.4. Contact Information

Name : Vishal Singh (Vice Chairman, Ayodhya Development Authority)

Email ID :vcafda@gmail.com

Contact Information : +91-9999990150

8.5. Please select the geographical coverage of the Energy Compact

☐Africa ☒Asia and Pacific ☐Europe ☐Latin America and Caribbean ☐North America ☐West Asia ☐Global

8.6. Please select the Energy Compact thematic focus area(s)

☒ Energy Access ☒ Energy Transition ☐ Enabling SDGs through inclusive just Energy Transitions ☒ Innovation, Technology and Data ☒ Finance and Investment.

Submission on Energy Compact: Sustainable Development Goal envisaged by Ayodhya Development Authority for Ayodhya City

SECTION 9: ADDITIONAL INFORMATION (IF REQUIRED)

Please provide additional website link(s) on your Energy Compact, which may contain relevant key documents, photos, short video clips etc.
N/A