Version 3Aug

SDG7 Energy Compact of [Rourkela Smart City Limited , Odisha , India]

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): **Covering 30% energy through clean energy by 2030** Time frame: 2022-2025 **About the City :** Rourkela, a prominent city of Odisha selected as the 2nd smart city in the state of Odisha after Bhubaneswar. The city is having natural setting and cosmopolitan character. It is in the heart of the tribal and cultural belt renowned for producing international level sports and cultural talents. Rourkela has a population of 6,22,636. Rourkela aims to be a more livable, inclusive, sustainable and self-reliant city propelling regional economic development through it's' vision to grow further with sustainability. Rourkela has been selected as the smart city in the second phase of smart city list on 20 September 2016. **Context for the ambition(s):** Rourkela is working on its blueprint to generate 30 % of energy through clean energy programs, for this purpose the smart city has launched "Solarizing Rourkela initiatives". This program is planned in such a manner that energy requirement of city spaces should be fulfilled through solar energy. Characteristically in its initial Phase the program has launched 06 of its Solar related Project and 05 no. of other project on ; 1. **Community Solar Project:** Solar Street light for Rourkela slums program to inhabit use and adaptation of solar energy. 2. **Solar Park**: Establishment of Solar Park Project by 2025. 3. **Solar Roof Top in Government Segment**: Covering all Government buildings through Solar Roof Top Power Plant by 2022. Currently only 10 % of it have been covered. 4. **Solar roof top adoption in private segment:** Promotion and installation of cumulative 10MWp solar PV systems in residential, institutional and small industries by year 2024. A MoU has been signed with NIT Rourkela incubated startup- Koel Fresh Pvt Ltd. 5. **Renewable mobility Initiative:** Use of Solar Traffic lights at all the high traffic zones by 2021. 6. **Solar Breast Feeding Pods:** Installation of Solar Breast Feeding Pods for young children, infants and care givers by 2021 7. **Solarizing ICDS center:** Rourkela in Process of Making Smart ICDS centers or Anganwadi has planned to provide complete solar light solutions Anganwadi by 2021. *Additionally other planned projects will support to access the goal of affordable , reliable energy services with this objective other projects were planned at the smart city Rourkela 8. **Green Transport:** We have already created various bus/truck terminals powered by solar energy further innovative Technological solutions will be implemented to provide and promote green transport solutions at 10 no. of major high traffic zones. 9. **Waste Management:** This particular project is planned in such a manner that segregated waste will be converted into organic manure to help farmers. 10. **ECBC Building:** Energy Conservation Building Code were implemented in all coming buildings under Rourkela Municipal Corporation , Rourkela Development Authority, Rourkela Smart City Limited.

	11. **Rewarding/Promoting Energy efficiency:** The city has planned various community engagement interventions and yearly rewards were fixed for citizens from residential and commercial areas to introduce new innovative energy conservation technologies. The Rourkela smart city believes the real changes comes when citizens get engage with this whole idea of energy conservation and with this objective such community engagement plans are being introduced.
☐**7.2.**By 2030, increase substantially the share of renewable energy in the global energy mix.	Target(s): **Traditional and Innovative Technological solutions for renewable energy sources by 2030** Time frame: 2021-2025 Context for the ambition(s): Rourkela is gradually moving to bring more and more technological solutions through renewable energy sources, apart from smart solarizing Rourkela initiative , we have 03 number of programs on the same subject : 1. **Rain Water Harvesting -** The Rain Water Harvesting has been a part of our traditional Indian culture to preserve water. The city council has established several of rain water harvesting systems in parks and other public places for better management of rain water leading to sustainable growth of plants and trees around the city. The idea is to enhance the flora and fauna of city and will bring the ecological balance for better environmental sustainability. **2. Green Transport :** The smart city of Rourkela has been planning various initiatives under green transport as follows: -Collaboration with a clean energy tech startup at NIT Rourkela to promote 2W electric vehicles in city under "Electrify Rourkela Mobility" initiative - Using battery operated vehicle in entire city waste management services - Construction of a corridor for cyclists along the length of Ring Road to encourage population to use cycle while travelling short distances - Initiatives has been taken for Solar based City Bus Service through Smart City Limited. - Charging satiations for battery charging of points for vehicles. - All of the above innovative solutions will be executed in 10 no. of identified high traffic zones. **3. Waste Management:** The city is already segregating wet waste from the households, markets, hotels and from various segments and with Micro composting centers it is been converted into organic manure. The RMC has signed MoU with Agri-clean tech startup (Koel Fresh Pvt Ltd) which helps in sustainable use of organic waste for feeding piggery farms and manufacturing of organic manure in outskirts of Rourkela. The local farmers are using the manure for growing organic horticulture cultivation.
☐**7.3.** By 2030, double the global rate of improvement in energy efficiency.	Target(s): **Reduce energy intensity by 30% in year 2030 as compared to 2005 levels**. Time frame: 2021/22-2025-26 Context for the ambition(s): Rourkela aims to reduce energy intensity by 30% in year 2030 as compared to 2005 levels. 1. **ECBC in buildings**: Rourkela Municipal Corporation and smart city Rourkela together aims to implement energy conservation building code (ECBC) in all new public buildings, encourage private institutions participations for overall improvement in energy efficiency in city buildings. 2. **Promote Energy efficiency:** The city council also aims to promote star rating in hotels and offices through recognition and better promotion post Covid, who would decrease the energy demands through various technology and social innovations. Rewards from city council have been fixed for citizens of the city who are enthusiastic to introduce new innovative solution for energy conservation. IEC activities are in process to engage young students through competition and challenges at school and college level to introduce such technological solution and the best of it will be implemented by Rourkela Smart City. 3. **Replacing high energy intensity street lights with LED lights**: Rourkela Smart city aims to convert the entire street lights to energy efficient LED lights, reducing energy demand by 70% and the entire replacement is envisaged to be completed by year 2025.
☐**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): **Collaboration with international universities , research institutes and city councils** Time frame: 2025 Context for the ambition(s): 1. **Climate Advisory body**: The city council is one of the members of climate advisory body, hosted by Koel Fresh Pvt Ltd (A agri-clean tech startup). The body aims to provide advisory supports with regard to best practices across globe in making Rourkela city, a clean and green by year 2025. 2. **Collaborations with international institutions** like Oxford and Cambridge Universities for designing and promoting low carbon technologies in the city by year 2024.

☐**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): **Installation of appropriate enabling infrastructure by 2025 for promoting low carbon technologies** Time frame: 2025 Context for the ambition(s): Enabling infrastructure such as setting up city charging infrastructure, establishment of standard testing laboratories are some of the essential entities for promoting low carbon technologies.

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].*

Description of action (please specify for which ambition from Section 1)	*Start and end date*
Target – 30% energy through clean energy by 2030 **Name of the Project : Rourkela Solarization Program in Details :**	
(i) Solar Street Lights in Slums There are 138 slums in Rourkela out of which some slums are in congested area without adequate road for mobility. The RSCL has programmed to install Solar Street Lights in 32 surveyed slums on pilot basis, where a solar street light and solar wall mounted lights is proposed to be installed. This will directly provide impact in lives of 1637 households.	*2021- 2023*
(ii)Solar Roof Top Power Plant- The RSCL has initiated a proposal for installation of Solar Roof Top Power Plant in 54 Govt. Buildings like Schools & Colleges, Govt. offices, Hospital, Hostels (SC, ST development school), Stadiums & Training Centre. The central objective is to reduce fossil fuel electric consumption.	*2021-2025*
(iii) Solar PV roof top systems in private segment: The city council collaborates with Koel Fresh Pvt Ltd to Mobilize 2000 households towards installation of solar PV roof top systems	*2021-2024*
(iv) Upcoming Solar Park The RSCL has programmed to set up a Solar Park of 05 MW capacities utilizing the major Open Space/Parks, hills situated/located in the mids of the city across the DAV Pond.	*2021-2025* *2021-2022*
(v) Green mobility Initiative: Rourkela has identified a total of 10 traffic light zones to be solarized by the help of traffic police department. All of these zones are high traffic zones.	*2021-2023*
(vi) Solar Breast Feeding Pods under Nurturing Neighborhoods Program - Nurturing Neighborhoods Challenge by Ministry of Housing and Urban Affairs , Smart City Mission, Government of India is a 3-year initiative that aims to work with Indian cities and their partners to pilot and scale ways to improve public space, mobility, neighborhood planning, access to early childhood services and amenities, and data management across city agencies. Rourkela has been selected as top 25 cohort city under this program at national level under this program for its proposed projects. One of its project is installation of Breast Feeding Pods for young children, infants and care givers. Rourkela Smart city has planned the Installation of Breast Feeding Pods for young children, infants and care givers by 2021, all the energy requirements of	*2021-2023*

these pods will be fulfilled through solar power and it will be maintained by child development project officer's office of Rourkela. This support will directly impact and will benefit the population of ITC Infants, Toddlers and caregivers in the selected neighborhood. **(vii) Solarizing ICDS center:** Rourkela in Process of Making Smart ICDS, Integrated Child Development Centers or Anganwadi under Nurturing Neighborhoods program has planned to provide complete solar light solutions at Anganwadi by September 2021 in 03 no. of identified Anganwadi or ICDS Centers. This will again help in early childhood development process by directly impacting the population of ITC Infants, Toddlers and caregivers in the selected/identified neighborhood. **(viii) Green Transport:** Solar Based Mobility Solutions , Battery Operated Vehicles, Solar based City Bus Service etc all these interventions will nurture the future population of Rourkela to understand the real importance of energy conservation and motivate them to find more innovative green mobility solutions for future building. **(ix) ECBC in buildings**: Rourkela is trying to imply major Energy Conservation building codes in our future and ongoing projects , for example we are trying to execute ECPV (Electrochemical photovoltaic cell thin film in all the glazing of the buildings so that less solar radiation can entry into the building and energy consumption can be reduced by 50 % (electronic appliances such as AC will utilize less power consumption due to such intercession) initially on pilot basis we are trying to implement this all upcoming government building projects. **(X) Waste Management:** Manufacturing of organic manure through our proposed process will bring positive changes in economic sustainability particularly farmers in and around the city also to the nearby village farmers. Since the city council will be selling this organic manure on very minimal cost they can afford this and use organic manure for horticulture cultivation which is mostly consumed by city population. This will help us to create a cycle/ structure which will be beneficial for local level small or medium level farmers and at the same time will help in promoting the larger use or organic manure in agriculture systems.	
Target: **Traditional and Innovative Technological solutions for renewable energy sources by 2030** **i. Rain Water Harvesting** Installation of more than 700 rain water harvesting structures in various public areas and parks of Rourkela city. *ii.* **Green Transport** Utility of battery operated vehicles for entire Municipal waste management of Rourkela *iii.* **Waste Management** *Installation of Biogas digesters units for complete evacuation of city organic waste*	***Start and end date*** 2021- 2023 2021-2024 2021-2023
Target(s): **Reduce energy intensity by 30% in year 2030 as compared to 2005 levels**. **a. ECBC in buildings** Construction of new buildings as per ECBC norms and integration of energy efficient technologies as retro fitment in existing buildings **b. Promote Energy efficiency** Promote star rating in hotels and offices. **c. Replacing high energy intensity street lights with LED lights** Converting high energy intensive street lights to LeD street lighting.	***Start and end date*** 2021-2025 2021-2025 2021-2023
Target(s): **Collaboration with international universities , research institutes and city councils** *Engagement with international research partners for developing and promoting low carbon technologies by conducting comprehensive studies.*	*2021-2025*
Target(s): Target(s): **Installation of appropriate enabling infrastructure by 2025 for promoting low carbon technologies** *Establishment of appropriate electric charging infrastructure in city and setting up standard testing laboratory for net metering testings (to enable smoother execution of on grid projects)*	*2021-2025*

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].*

As mentioned above – Section 2	*2030*

SECTION 4: REQUIRED RESOURCES AND SUPPORT

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

I. Rourkela Solarization Program in Details :

1. **Community Solar Project:** Solar Street light for Rourkela slums program to inhabit use and adaptation of solar energy : ***INR (*may be implemented by our internal sources)***
2. **Solar Park**: Establishment of Solar Park Project by 2025 : ***INR 18 crore (*Support Required)***
3. **Solar Roof Top in Government Segment**: Covering all Government buildings through Solar Roof Top Power Plant by 2022 : ***INR (*Implemented by our internal sources)***
4. **Solar roof top adoption in private segment:** Promotion and installation of cumulative 10MWp solar PV systems in residential, institutional and small industries by year 2024. A MoU has been signed with NIT Rourkela incubated startup- Koel Fresh Pvt Ltd. : ***INR 30 lacs (*Support Required)***
5. **Renewable mobility Initiative:** Use of Solar Traffic lights at all the high traffic zones by 2021 : ***INR 20 lacs (*Support Required)***
6. **Solar Breast Feeding Pods:** Installation of Solar Breast Feeding Pods for young children, infants and care givers by 2021 : ***(*Implemented by our internal sources, work is already in progress)***
7. **Solarizing ICDS center:** Rourkela in Process of Making Smart ICDS centers or Anganwadi has planned to provide complete solar light solutions Anganwadi by 2021 : ***(*Implemented by our internal sources, work is already in progress)***

II. **Traditional and Innovative Technological solutions for renewable energy sources by 2030**

1. **Rain Water Harvesting**
   Installation of more than 700 rain water harvesting structures in various public areas and parks of Rourkela city. : **INR *(*Implemented by our internal sources, work is already in progress)***
2. **Green Transport**
   Utility of battery operated vehicles for entire Municipal waste management of Rourkela : ***INR 400 lacs (*Support Required)***
3. **Waste Management**
   Installation of Biogas digesters units for complete evacuation of city organic waste ***: INR 500 lacs --(*Implemented by our internal sources, work is already in progress)***

III. **Reduce energy intensity by 30% in year 2030 as compared to 2005 levels**.

1. **ECBC in buildings**
   Construction of new buildings as per ECBC norms and integration of energy efficient technologies as retro fitment in existing buildings ***: INR 500 lacs (*Support Required)***

2. **Promote Energy efficiency**
   Promote star rating in hotels and offices. : ***INR 20 lacs --(*may be implemented by our internal sources)***

3. **Replacing high energy intensity street lights with LED lights**

   Converting high energy intensive street lights to LeD street lighting : ***INR 100 lacs (*Support Required)***

IV. **Installation of appropriate enabling infrastructure by 2025 for promoting low carbon technologies**
Establishment of appropriate electric charging infrastructure in city and setting up standard testing laboratory for net metering testings: INR 50 lacs

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	*Access to low debt finance for various activities including access to citizens towards financing of small scale solar PV roof top solutions*
☐ In-Kind contribution	*Capacity building in data collection, workshops and training programme for ground team in executing several clean energy projects.*
☐ Technical Support	*Technical support towards building enabling ecosystem supports including base line studies / startup promotion and others*
☐ Other/Please specify	*Description*

SECTION 5: IMPACT

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

India

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

The various actions mentioned are aligned towards goal 7 of SDG which emphasize on affordable clean energy to population. The Solarization Rourkela programme would reduce CO2 emissions by 50,000 tonne/ year. The establishment of biodigesters would reduce dumping of any organic waste in the landfills and ensures effective waste management along with clean energy power generation. Such types of activities are envisaged to create new business opportunities and livelihood to various section of population.

5.3. Alignment with Paris Agreement and net-zero by 2050 - Please describe how **each** of the actions from section 2align 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]

The projects includes promotion of clean energy technologies and energy efficiency. This completely aligns with Paris agreement and net-zero by 2050.

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.

a. A Internal monitoring team has been setup to continuously track the progress
b. A external third party agency would be hired to carryout regular auditing of projects
c. Digital portal would be created to integrate all the relevant data of progress for better transparency
d. Designing an innovative mechanism , where Financing and approval of further projects would depend on the status of existing progress

SECTION 7: GUIDING PRINCIPLES CHECK LIST

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

I.2. Does the Energy Compact increase the geographical and/or sectoral coverage of SDG7 related efforts? ☐Yes

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

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

II.2. Does the Energy Compact align with national, sectoral, and/or sub-national sustainable development strategies/plans, including SDG implementation plans/roadmaps?☐Yes

II.3. Has the Energy Compact considered a timeframe in line with the Decade of Action? ☐Yes

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

III.2. Has the Energy Compact considered energy-related targets and information in the updated/enhanced NDCs? ☐Yes

III.3. Has the Energy Compact considered alignment with reaching the net-zero emissions goal set by many countries by 2050? ☐Yes

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

IV.1. Does the Energy Compact include socio-economic impacts of measures being considered? ☐Yes

IV.2. Does the Energy Compact identify steps towards an inclusive, just energy transition? ☐Yes

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

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

V.2. Has the Energy Compact considered inclusion of a set of SMART (specific, measurable, achievable, resource-based and time based) objectives? ☐Yes

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

SECTION 8: ENERGY COMPACT GENERAL INFORMATION

8.1. Title/name of the Energy Compact

Ama Urjaa Program

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)

Rourkela Smart City Limited

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

Email Address :Official Email ID : rourkelascl@gmail.com , Coordinating Person no. 7992440367

8.5. Please select the geographical coverage of the Energy Compact
Asia and Pacific

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

All of the above

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.

https://www.newindianexpress.com/states/odisha/2021/aug/05/rourkela-set-to-go-green-with-solar-power-2340469.html : Solarization Rourkela initiative

https://www.newindianexpress.com/states/odisha/2020/dec/20/rourkela-municipal-corporation-ropes-in-private-firms-for-waste-management-in-steel-city-2238674.html : waste management

https://drive.google.com/drive/folders/1N-4e4LeKN2-o26hYm65nDCkORQ7Opa0I?usp=sharing : Photographs of Solar/energy projects of Rourkela city.

https://odishatv.in/news/national/rourkela-among-two-indian-cities-to-make-it-to-50-finalists-in-bloomberg-global-mayors-challenge-49575 : Bloomberg Global Mayors Challenge Rourkela among 50 champion city among 23 countries

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https://www.newindianexpress.com/states/odisha/2021/jun/17/rourkela-among-50-champion-cities-2317480.html : Rourkela among 50 champion city

https://www.facebook.com/417163885770416/posts/989976705155795/ : Video on Rainwater Conservation Projects