10 General Problems or Priority Areas for the SolarX Startup Challenge in Latin America and the Caribbean

P1: Develop scalable, sustainable, and resilient off-grid solar solutions.

- Focus on solar home systems, mini-grids, and microgrids to combat energy poverty in remote areas and regions outside interconnected energy systems across Latin America and Caribbean (LAC) countries.
- Develop solutions that are sustainable in the short and long term to ensure reliable energy access during extreme weather events and recovery periods.
- Consider agricultural applications such as small-scale solar-powered processing and cold storage systems to reduce post-harvest losses.

P2: Create scalable models to enhance cost competitiveness in solar applications.

- Optimize energy-intensive production processes and smart logistics systems powered by solar energy, particularly in logistics, manufacturing, and supply chains.
- Encourage small-scale applications such as solar-powered food carts and solar-powered cooling storage for agricultural produce to reduce spoilage and operational costs.

P3: Develop innovative, space-efficient solar technology.

- Address challenges of limited land availability in densely populated or land-deficient countries.
- Promote collaborative rooftop solar projects among small businesses and explore floating solar installations in small bodies of water.

P4: Promote a circular economy in the solar sector.

- Focus on recycling end-of-life solar panels, reducing electronic waste, and ensuring responsible disposal.
- Consider launching awareness campaigns and pilot initiatives to incentivize responsible recycling practices.
- Take into account the need for regional mechanisms for solar panel waste processing, including the possibility of export in compliance with international conventions.

P5: Develop AI, IoT, and GPS-based tools (SaaS) for the solar sector.

- Create tools for land mapping, 3D modeling, project monitoring, and other applications to improve solar energy manufacturing, deployment, and integration.
- Support the development of affordable remote monitoring tools, including solar security and fire alert systems.

P6: Innovate in the manufacturing of sustainable and efficient materials.

- Enhance energy output, reduce costs, and improve the efficiency of solar equipment, including high-efficiency inverters, ACDBs, DCDBs, and other components.
- Encourage partnerships with local universities and research institutions to develop components adapted to tropical climates, such as humidity- and heat-resistant inverters and panels.

P7: Develop technical or business model innovations to reduce grid integration costs.

- Optimize energy distribution for rooftop solar, utility-scale solar, and energy storage solutions to address solar power generation intermittency.
- Ensure that proposed business models are adaptable to diverse regional infrastructure contexts, including areas where grid integration is not currently feasible.

P8: Implement solar-powered technologies for sustainable resource management.

- Include high-efficiency DC pumps with smart controllers for water pumping, purification, and irrigation.
- Promote cooperative irrigation models and prioritize user-friendly, low-maintenance systems for small-scale farmers.
- Incorporate solar-powered cooling solutions for air conditioning and refrigeration that sustainably and efficiently meet regional cooling needs.

P9: Promote solar-powered solutions for emerging use cases.

- Focus on e-mobility, green hydrogen, agrivoltaics, transportation, and solar-charging infrastructure for electric vehicles.
- Encourage off-grid applications such as dual-use solar farming (agrivoltaics) to maximize land productivity.

- Promote sustainable tourism innovations powered by solar energy, including eco-resorts, dock power systems, solar-lit trails, and charging stations.

P10: Other solar application areas with practical on-ground impact.

- Support groundbreaking solar technologies or applications addressing unique challenges in LAC countries, with clear criteria to ensure selected startups demonstrate innovation, sustainability, and transformative potential. Consider the development of enabling regulations to promote the adoption of these technologies.

  Examples include solar-powered food dehydration systems, off-grid mobility solutions for tourism, and solar-powered disaster resilience hubs with basic emergency services.