1. As a leverage with the American-Made Network, we will submit a user proposal and collaborate with staff scientists at National Renewable Energy Laboratory (NREL) to use laser scriber for manufacturing of solar modules at the beginning. The team captain has experience collaborating with scientists in NREL to make perovskite solar modules and published a paper together [1]. We will purchase a laser scriber using the budget of solar prize since this tool will be heavily used for module fabrication.

   At NREL, we will also request efficiency certification and stability tests at cell level during solar module fabrication using laser scriber there.

2. We will collaborate with staff scientists at PACT (Perovskite PV Accelerator for Commercializing Technologies) Center, Sandia National Laboratories, for module reliability tests.

3. We will seek collaboration with D2 Solar for professional packaging after manufacturing of perovskite solar modules. As a member of the American-Made Network, D2 Solar is an engineering services company specializing in photovoltaic technologies. We will also work with D2 Solar for pilot manufacture to validate scale-up manufacturability and accelerate product development for commercialization.

[1] Zhongliang Ouyang, Mengjin Yang, James B. Whitaker, Dawen Li* and Maikel F. A. M. van Hest*, "Towards scalable perovskite solar modules using blade-coating and rapid thermal processing", ACS Applied Energy Materials, 3, 3714-3720 (2020)