Project Overview:

The **Solar Window Film (SWF)** is an affordable, transparent solar film that can be applied to existing windows in low-income housing. Advanced thin-film photovoltaic technology (CIGS or Perovskite-based) generates electricity from sunlight while allowing natural light to pass through, providing an innovative, non-invasive solution to expand access to solar energy.

Key Technical Features:

- **Efficiency**: Achieves 15-20% solar conversion efficiency.
- **Material**: Utilizes lightweight, flexible, and cost-effective materials like CIGS or Perovskite.
- **Energy Output**: Multiple windows equipped with the film can generate substantial electricity, reducing household energy bills by up to $650 annually.
- **Durability**: UV and weather-resistant for long-term deployment.
- **Energy Storage**: Integrates with affordable battery systems for night-time or peak usage, enhancing resilience.

Market & Impact:

- **Accessibility**: Targets low-income households, renters, and multifamily buildings where rooftop solar isn't feasible.
- **Affordability**: Estimated cost of $10–$15 per square foot.
- **Scalability**: Mass production potential for widespread urban and low-income housing applications.
- **Energy Equity**: Contributes to reducing energy bills and achieving carbon-free electricity goals by 2035.

Partnerships & Next Steps:

- Collaborate with housing developers, local governments, and solar manufacturers.
- Pilot projects in high-density urban areas like NYC, LA, and Chicago.