### POSE: Phase I: PolicyEngine - Democratizing Public Policy Analysis

**Overview**

PolicyEngine is an open-source economic modeling platform that democratizes access to sophisticated policy analysis tools. Our platform has been recognized by the UN-endorsed Digital Public Goods Alliance and powers analysis at major institutions while building a sustainable ecosystem through a multi-faceted revenue model that reinforces our open-source mission.

Microsimulation tools are essential for understanding policy impacts but have historically been siloed within government agencies and think tanks. PolicyEngine breaks this barrier through three components: a comprehensive tax-benefit rules engine, integrated microdata that reduces deviations from administrative data by over 90%, and accessible interfaces including an API that serves both open-source projects and organizations who opt to use our hosted infrastructure.

This POSE Phase I project develops a three-part plan for establishing PolicyEngine as a robust open-source ecosystem (OSE):

* Through ecosystem discovery, we will identify gaps in policy analysis capabilities and strengthen our sustainable revenue model that combines philanthropic support for our public good mission, research contracts to enhance our tools, development funding from API users expanding our model's capabilities, and cost-based API hosting fees
* We will evolve from a project of the Policy Simulation Library Foundation into an independent 501(c)(3) with a governance structure that balances open-source values with sustainable growth
* Community engagement professionals will nurture our diverse community of policy researchers, benefit access practitioners, and contributors while expanding partnerships that enhance our model's capabilities

**Intellectual Merit**

PolicyEngine advances economic policy analysis by combining precision rule-based software with advanced microsimulation strategies. Our approach yields a transparent policy analysis tool distinguished by comprehensive modeling of complex tax and benefit systems, advanced computational methods including quantile regression forests and gradient descent, and an accessible user interface. The proposed OSE will enable rapid prototyping and hypothesis testing in policy analysis while establishing a sustainable model where customers contribute to expanding our capabilities alongside using our services.

**Broader Impacts**

By democratizing access to sophisticated policy analysis tools, PolicyEngine transforms public engagement with economic policy. The platform empowers stakeholders from policymakers to citizens while building a sustainable ecosystem through aligned incentives: API users fund expansion of our open-source models to new geographies and programs, research contracts enhance our analytical capabilities, and philanthropic support enables broad access to policy insights. Our hosted API services power benefit screening tools used by Gates Foundation-supported nonprofits and venture-backed startups, helping address the $70 billion gap between benefit eligibility and enrollment. This virtuous cycle ensures long-term sustainability while advancing our mission of more effective and equitable public policies.

**Keywords:** SBE; Economic Policy Analysis; Open-Source Software; Public Policy; Benefit Access