Los Alamos NATIONAL LABORATORY

LA-UR-25-28862

Plasma Liner Experiment (PLX)

CALL FOR COMMERCIALIZATION PARTNERS

On behalf of Los Alamos National Laboratory (LANL), Triad National Security, LLC (Triad) invites qualified commercial partners to submit proposals for the advancement, commercialization, and deployment of the ***Plasma Liner Experiment (PLX)*** —a novel, scalable platform for plasma-jet-driven magneto-inertial fusion (PJMIF) and high-energy plasma applications.

Triad seeks commercialization partners from aerospace, fusion, and advanced energy sectors who can commit to a phased, multi-year commercialization plan. Partners should address how they intend to relocate PLX from LANL, develop and implement a roadmap for short- and long-term markets, and deploy the platform into high-demand short-term markets while advancing fusion development.

For partnership engagement to be successful, commercialization partners will need to engage in one or more of the following tech transfer agreements:

- ***License Agreement*** — At a minimum, a license agreement for rights in Triad intellectual property associated with PLX will be required. Specify the scope of rights (exclusive, nonexclusive) needed to meet the business objectives in the commercialization plan.

Other agreements that may be suitable, depending on the nature of the commercial proposal and intended plans for PLX, include:

- **Cooperative Research and Development Agreement (CRADA)** — a framework that allows LANL to collaborate by sharing resources, expertise, and intellectual property to accelerate technology development and commercialization while ensuring the protection of proprietary information and inventions.
- **Strategic Partnership Project with a Non-Federal Entity (SPP-NFE)** — a mechanism enabling LANL to perform sponsor-funded research, development, testing, or technical services on a full-cost-recovery basis.
- **Technical Assistance (New Mexico companies)** — LANL provides technical expertise, information, or analysis to help solve a specific problem, inform decision-making, or support technical maturation outcomes.

Final determination about the appropriate agreement configuration will be considered during the commercialization plan evaluation by Triad.

COMMERCIAL OPPORTUNITY

The fusion and high-energy plasma sectors are at a historic inflection point.

- **Fusion investment is surging** — Public and private funding for fusion reached record levels in the past five years, with DOE, ARPA-E, and private capital backing multiple commercial pathways.
- **Defense and aerospace demand is growing** — The U.S. Department of Defense is accelerating hypersonic development and the Golden Dome initiative, but current testing capacity is constrained and costly.
- **Dual-use platforms are in demand** — PLX's modular design can serve both immediate, revenue-generating defense/aerospace contracts and long-term fusion energy goals, creating a sustainable commercialization path.
- **First-Mover Opportunity** — The PLX asset is built, validated at the physics level, and ready for transfer.

BACKGROUND

The plasma-jet-driven magneto-inertial fusion (PJMIF) concept originated at LANL in 2010 as a hybrid between magnetic confinement fusion (MCF) and inertial confinement fusion (ICF). It uses high-speed plasma jets to create a spherical plasma liner that compresses a magnetized plasma target to achieve fusion conditions.

PLX Milestones to Date:

- Built and operated a 36-gun array of supersonic plasma jets to form spherical plasma liners.
- Built and operated a 6-gun array of magnetized plasma jets to form plasma targets.
- Demonstrated liner symmetry and ram pressure performance in experiments.
- Developed and integrated real-time diagnostic systems.
- Will achieve deuterium target compression with a plasma liner toward fusion-relevant parameters by mid-2026.

ABOUT TECHNOLOGY

Key Features

- Hybrid Fusion Model — Combines strengths of MCF and ICF for potentially lower-cost, modular scale-up.
- Non-destructive Operation — Plasma jets are isolated from the burn region, reducing wear and extending system life.
- Scalable Architecture — Configurable number of plasma guns for different performance needs.
- Compact Footprint — Operates without large magnets or multi-megajoule lasers.
- High Repetition Potential — Designed for repeatable, rapid test cycles.
- Real-time diagnostics and control software.

Technology Readiness Level: 3
Patent Status: Pending (App. 63/725137)
Copyright Status: PLX Firmware- LabVIEW (#T4974), Plasma Liner Experiment (PLX) LabVIEW Control System (#T4951)

Additional IP may be included in the final agreement reached between the parties.

APPLICATIONS AND MARKET POTENTIAL

Short Term Applications (1–3 years)

- Aerothermal and ablation testing for re-entry heat shields and TPS materials
- Component survivability testing for hypersonic vehicles
- Validation platform for Golden Dome and directed energy systems
- Telemetry and tracking component validation in high-enthalpy flows
- Advanced laser-plasma interaction R&D for non-linear optical effects

Revenue Potential: Market analysis suggests contracts in the $5–20M range per customer for hypersonic/ TPS validation campaigns.

Long-Term Applications (3–10+ years)

- Grid-scale fusion energy systems
- Modular plasma gun product lines for research, defense, or industrial uses
- Integrated power plant designs leveraging PJMIF advantages in cost and scalability

FINANCIAL OVERVIEW (ESTIMATED COSTS)

- Transfer and installation of PLX to new site: $0.7M
- Diagnostics (year 1 of three-year $4M plan): $1.5M
- New plasma guns (three-year $9M program): ~$3M in year 1
- Staffing: $1.5M (of $14M over three years)

COMMERCIALIZATION PLAN INSTRUCTIONS

Interested parties must submit a **Commercialization Plan** that includes the following:

1. **Company Background and Qualifications**
    - Mission and relevant industry experience
    - Prior work in fusion, aerospace, defense testing, or dual-use technology
    - Bios of founders, technical leads, and advisors

2. **Commercialization Vision**
    - Short-term commercialization plan
    - Long-term commercialization plan
    - Target customers, partners, and markets
3. **Technical Capability and Readiness**
    - Transition plan for disassembling, receiving and setting up PLX into their facility. (Willingness to complete associated transactions of PLX transfer by June 30, 2026.)
    - Facility and infrastructure requirements
    - New component or diagnostic development plans
4. **Business and Revenue Model**
    - Near-term revenue generation strategy
    - Long-term growth and funding plans
    - Pricing model and customer acquisition strategy
5. **Funding and Financial Capacity**
    - Capital available for PLX transfer and operations
    - Fundraising history
    - Strategy to launch and scale PLX
6. **Team and Talent**
    - Project leadership and core team (including names and citizenship for export control purposes)
    - Proposed advisor committee and board of directors
    - Hiring plans and talent acquisition advantages
7. **Define Milestones**

    Define three-year milestones, including the following:
    - Technical: Commissioning PLX at new facility, operational plasma shots, new equipment design and implementation, and progress towards short-term application opportunity.
    - Commercial: Identification and acquisition of early customers.
    - Fusion R&D: Demonstration of compression and heating benchmarks.
    - Financial: Secured sufficient operating capital for at least 24 months post-transfer.
8. **IP and Regulatory Compliance**
    - IP management strategy for PLX patent
    - Export control and cybersecurity compliance experience
9. **References**
    - Provide three references familiar with your company

EVALUATION CRITERIA

Proposals will be scored on the following:

- Technical capability and experience
- Financial capacity and funding strategy
- Commercialization vision and market fit
- Team qualifications and execution readiness
- Alignment with DOE/LANL mission and national security objectives

SUBMISSION DETAILS

Proposals will be scored on:

- Technical capability and experience
- Financial capacity and funding strategy
- Commercialization vision and market fit
- Team qualifications and execution readiness
- Alignment with DOE/LANL mission and national security objectives

Milestone	Date
Call Released	September 2025
Commercialization Plans Due	October 4, 2025
Partner Selection & Notification	November 15, 2025
Execution of TT Agreements	March 2026 (target)*

SUBMIT YOUR COMMERCIAL PLAN TO

Richard P. Feynman Center for Innovation at PLXT2M@lanl.gov
Subject: *PLX Commercial Plan Submission*

For questions, contact PLXT2M@lanl.gov
For additional information on PLX, please visit our FAQ page.

LEGAL AND DISCLAIMERS

This Call for Commercialization Partners does not constitute a solicitation for procurement or licensing negotiations. Submissions will be evaluated for suitability and alignment with LANL's mission. Qualified respondents will be invited to participate in follow-up discussions and may receive a request for full business proposals.