

# Executive Summary

The American Jobs Project was borne of two tough problems: loss of middle-class jobs in America and congressional paralysis. It seeks to address these problems by taking advantage of one of the biggest market opportunities of our era—the advanced energy and enabling technology sectors—and to do so at the state, not the federal, level. State and local leaders who leverage the unique strategic advantages of their state to grow localized clusters of interconnected companies and institutions are poised to create quality jobs. This report serves as a strategic guide to support those efforts.

Extensive research and more than thirty interviews with stakeholders and experts in Montana have identified photonics as showing particular promise in the state. Photonics is a key enabling technology for many manufacturing industries and can provide a pathway for technological innovation, thereby creating middle-income jobs for Montanans and elevating Montana's companies in the marketplace.

Montana is well positioned to benefit from rising global demand for photonics given its existing cluster of over thirty companies, its leading research university with photonics expertise, its affordable cost of living, and its attractive quality of life. Opportunities to leverage this momentum to further serve growing regional, national, and global markets offer real benefits for the state economy and Montana residents. Montana could capitalize on its existing cluster and vast wind resources to create a competitive advantage over other clusters in the U.S. and Europe by promoting photonics solutions within advanced energy applications.

However, there are several barriers hindering Montana's photonics industry and preventing its existing companies from reaching their full potential. These barriers to growth range from lack of access to capital for the next generation of photonics researchers and entrepreneurs to the lack of technical training for business development. Montana must address these roadblocks in order to become a competitive hub for photonics.

To take full advantage of these opportunities, state leaders can pursue strategies to create a strong foundation for industry growth and to help Montana businesses grow, innovate, and outcompete regional, national, and global competitors. With forward-thinking policies, Montana's photonics industry can support over 6,300 direct, indirect, and induced jobs annually through 2030. These jobs will spark local job growth and economic

---

development as employees spend their earnings in the local economy.

## Summary of Recommendations

The analysis presented in this report culminates in recommendations for Montana's leaders based on best practices in the United States and abroad. Each recommendation identifies opportunities for barrier removal and future growth in the photonics sector. While the recommendations are intended to be complementary and would be more powerful if adopted as a package, each can also be viewed as a stand-alone option.

### Recruiting and Expanding Photonics Companies

**Boost the Foreign Direct Investment Strategy:** Taking advantage of Montana's high quality of life, ample space, and existing photonics infrastructure to attract international optics investment.

**Provide Tax Incentives to Attract New Photonics Businesses and Fill Supply Chain Gaps:** Creating incentives for large companies to locate in the state and recruit their supply chain companies to join them.

**Institute a Business Equipment Tax Exemption for Photonics Companies:** Spurring photonics companies to invest in the technologically sophisticated and expensive equipment necessary to manufacture optical products.

### Access to Capital

**Create an Online Crowdfunding Hub:** Creating an online hub where potential investors can learn about and invest in Montana companies.

**Use an Insurance Credit Auction to Fund the Montana Board of Research and Commercialization Technology:** Strategically investing in the most promising Montana photonics startup companies to generate a positive return on investment, increase tax revenue, and create jobs.

**Establish a Technology Investment Tax Credit:** Creating an incentive for early-stage investments in photonics to grow companies.



---

## Innovation Ecosystem

**Leverage Philanthropic Funding Via a Foundation Liaison:** Bolstering state resources by coordinating and leveraging private funds.

**Provide Scholarships and Fellowship Grants to Attract and Retain Top Photonics Students:** Backing the best and brightest photonics students to attract world-class talent to Montana State University's photonics program, where they can discover cutting-edge photonics technologies and applications.

**Become an AIM Photonics Innovation Center:** Joining the preeminent national photonics research, development, and commercialization organization to elevate Montana's profile and expand exposure to potential investors, entrepreneurs, and researchers.

## Workforce Development

**Introduce Lab Space and Equipment Sharing:** Pooling lab resources and space for Montana's leading photonics research university and technical college to unleash cost savings and add capacity to train additional photonics engineers, lab technicians, and scientists.

**Develop Online and Field Training Options:** Offering remote learning methods to overcome the vast geographic expanses that separate hundreds of thousands of Montanans from where the photonics training programs are based.

**Offer an Accelerated Optical Technician Training Program:** Providing a one-year, intensive program to empower those Montanans changing careers to gain the technical skills and training necessary to enter the industry while minimizing their time out of the workforce.

## Create Demand for Advanced Energy Photonics Products

**Increase Montana's Renewable Portfolio Standard:** Including a wind carve-out in an updated RPS to stimulate Montana-based demand for photonics products with wind applications.