Executive Summary: Florida – AISF (American Innovation & Sustainability Fund)

Overview

The **Florida initiative** within the **AISF Master Plan** aims to **valorize phosphate mining by-products**—particularly **phosphogypsum**—to **recover rare earth elements (REEs)** and **expand AI-driven orthotics** through **Invisa.ai™**. This project will **support U.S. mineral supply chains**, **reduce environmental hazards** from phosphogypsum stacks, and **improve healthcare access** for underserved populations, including seniors and diabetic patients. Over the next **15 years**, this initiative will position Florida as a **leader** in **sustainable resource recovery** and **AI-powered healthcare** solutions.

Key Objectives

- **Phosphate Mining Waste to Rare Earths**
  - **Extract** REEs (neodymium, yttrium, lanthanum) from **phosphogypsum**, a by-product of the **phosphate fertilizer industry** in Florida's **Bone Valley** region.
  - Create a **sustainable** domestic supply of critical minerals, **reducing dependence on foreign sources** for clean energy (EV batteries, wind turbines) and defense technologies.
- **AI-Driven Orthotics Access**
  - Deploy **Invisa.ai™** orthotic solutions (**Invisabrace®**, **InvisaSole®**) to improve **mobility**, **balance**, and **gait**, targeting **underserved populations**—seniors, diabetic patients, and children with disabilities.
  - Partner with Florida's **medical institutions** (University of Florida, Florida Health) to **increase healthcare access** and reduce **mobility-related complications** (e.g., diabetic foot issues).
- **Environmental & Economic Impact**
  - Reduce the **environmental footprint** of over **1 billion tons** of phosphogypsum by converting it into **valuable resources**.
  - Generate **economic value** through REE sales and advanced orthotic devices, improving **local environmental health** and boosting **Florida's economy**.

Phases

Phase 1 (0–12 months)

- **Feasibility & Site Assessment**
  - Conduct **feasibility studies** on phosphogypsum stacks in the **Bone Valley** region, identifying optimal REE extraction sites.

- Collaborate with the **Florida Industrial and Phosphate Research Institute (FIPR)** and **University of Florida** to refine extraction processes.

➢ **Pilot Extraction & Testing**
- Establish a **pilot-scale REE extraction facility** processing **5,000–10,000 tons** of phosphogypsum, targeting **50–100 tons** of REEs annually.
- Focus on **neodymium** and **yttrium** recovery in initial trials.

➢ **AI Orthotics Development**
- Begin **clinical trials** of **Invisa.ai™** orthotics with **Florida Health** and **University of Florida**.
- Test **Invisabrace®** and **InvisaSole®** with **500–1,000 patients** (seniors, diabetic patients, children with cerebral palsy).

➢ **Partnership Formalization**
- Formalize MOUs with **FIPR**, **University of Florida**, and **Florida DEP** for regulatory support and technology development.
- Secure **$5–10M** in funding for pilot extraction, environmental compliance, and initial orthotics R&D.

Phase 2 (12–24 months)

1. **Phosphogypsum Processing Facility**
   - Construct a **modular REE extraction** facility capable of processing **10,000–20,000 tons** of phosphogypsum annually.
   - Aim for **100–200 tons** of REEs per year, refining neodymium, yttrium, and other critical minerals for **battery manufacturers** and **wind turbine producers**.
2. **Orthotics Rollout**
   - Expand **Invisa.ai™** access to **Florida's Medicaid** population and underserved communities.
   - Provide **1,000–2,000 devices** in the first year, partnering with **state-run clinics**, **nonprofit hospitals**, and **private practices**.
3. **Revenue Generation**
   - **$5–8M** from REE sales, **$2–3M** from orthotic devices in Phase 2.
   - Reinforce local supply chains and **healthcare networks**.

Phase 3 (24–36+ months)

1. **Full-Scale REE Extraction Facility**
   - Scale to process **100,000 tons** of phosphogypsum annually, recovering **500–700 tons** of REEs each year.
   - Become a **key domestic supplier** for **EV batteries**, **wind turbines**, and **defense systems**.
2. **National Rollout of Orthotics**
   - Deploy **Invisa.ai™** to **10,000+** patients nationwide, with special focus on veterans, elderly populations, and diabetic patients.
   - Target **$30–40M** in annual revenue from **orthotic device** sales.
3. **Revenue Projections**

- By **Year 5**, total revenue from **REE sales** and **orthotics** is expected to exceed **$50–75M** annually.

Impact

1. **Environmental Impact**
   - Process **100,000 tons** of phosphogypsum annually, reducing Florida's hazard of over 1 billion tons.
   - **Improve local water quality** by recovering **toxic metals**, aiding ecosystem health.
2. **Economic Impact**
   - **500–600 direct jobs** in phosphate waste processing, REE refining, and healthcare tech.
   - **1,500+ indirect jobs**, generating **$150M+** annual economic impact by **Year 5**.
3. **National Security & Supply Chain Resilience**
   - Domestically produced REEs reduce reliance on **foreign sources** (especially China).
   - Strengthened supply chains for **clean energy** (EVs, wind turbines) and **military tech**.

Financial Projections

Below are the 5-year, 10-year, and 15-year outlooks for the Florida initiative, which integrates **REE extraction** and **AI-driven orthotics** revenue streams.

Capital Investment & Revenue Stages

Phase	Timeline	Capital Investment	Primary Revenue Drivers	Projected Annual Revenue
Phase 1	0–12 months	~$5–10M	Pilot extraction facility, pilot orthotics trials	Minimal (initial R&D/clinical)
Phase 2	12–24 months	~$10–15M (cumulative)	Modular REE extraction (10–20k tons/yr), \Orthotics expansion (1–2k devices/yr)	$5–8M (REE) + $2–3M (orthotics)
Phase 3	24–36+ months	~$30–40M (cumulative)	Full-scale facility (100k tons/yr), \National orthotics deployment (10k+ devices)	$50–75M annually by Year 5

5-Year Financial Outlook

- **Year 1**
  - **Investment**: ~$5–10M in pilot facilities, orthotics R&D.
  - **Revenue**: Minimal, focused on **feasibility**, **clinical validation**.

- **Year 2**
  - **Additional Investment**: ~$5M
  - **Revenue**: **$5–8M** from REE sales, **$2–3M** from orthotics.
- **Year 3**
  - **Scaling to Full Production**: Achieve robust REE processing and moderate orthotics distribution.
  - **Revenue**: **$15–20M** total (REE + orthotics).
- **Year 5**
  - **Full-Scale Ops**: 100k tons of phosphogypsum/yr, 10k+ orthotic devices/yr.
  - **Annual Revenue**: **$50–75M** (REE + orthotics).
  - **Job Creation**: **500–600 direct**, **1,500+ indirect**.
  - **IRR**: **15–20%** over **5–7 years**.
  - **Breakeven**: By **Year 3**.
  - **3x ROI**: By **Year 5**, leveraging **REE** and **orthotics** markets.

10-Year Outlook

- **REE Market Growth**: Facility expansions could double or triple annual throughput, reaching **$150M+** in REE sales as global EV and wind turbine demand surges.
- **Orthotics Market Penetration**: Potential **20–25%** share of AI-driven solutions for diabetic foot care, seniors, and children with disabilities across the U.S.
- **Advanced R&D**: Continuous improvements in REE extraction efficiency, new AI orthotics lines (exoskeletons, advanced gait tech).

15-Year Outlook

- **Florida is a Global Leader** with Multiple **REE extraction plants**, **robust e-waste partnerships** for additional resource recovery, and **global orthotics distribution**.
- **Massive Economic Impact**: Tens of thousands of jobs, billions in cumulative economic output, and drastically reduced phosphogypsum stacks.
- **Sustainable Healthcare & Resources**: Florida is recognized for converting **phosphate waste** into **clean energy minerals** and providing advanced orthotics solutions globally.

Conclusion

The **Florida initiative** offers a **lucrative** and **mission-driven** opportunity to **transform phosphate mining waste** into critical minerals, scale **AI orthotics** for underserved populations, and **boost** Florida's healthcare and tech sectors. With **capital investments** of **$30–40M** through **Phase 1 and Phase 2**, the project aims for **$50–75M** in annual revenue by **Year 5**, **15–20% IRR**, and a **3x ROI**—all while addressing **environmental** and **public health** challenges. Over **10–15 years**, this initiative will position Florida as a **leader** in **sustainable resource recovery**, **domestic REE production**, and **cutting-edge medical device innovation**, driving both **economic growth** and **social impact** statewide.