Sam Dixon
Net-Zero Nuclear Programs Manager
INL Net-Zero Program

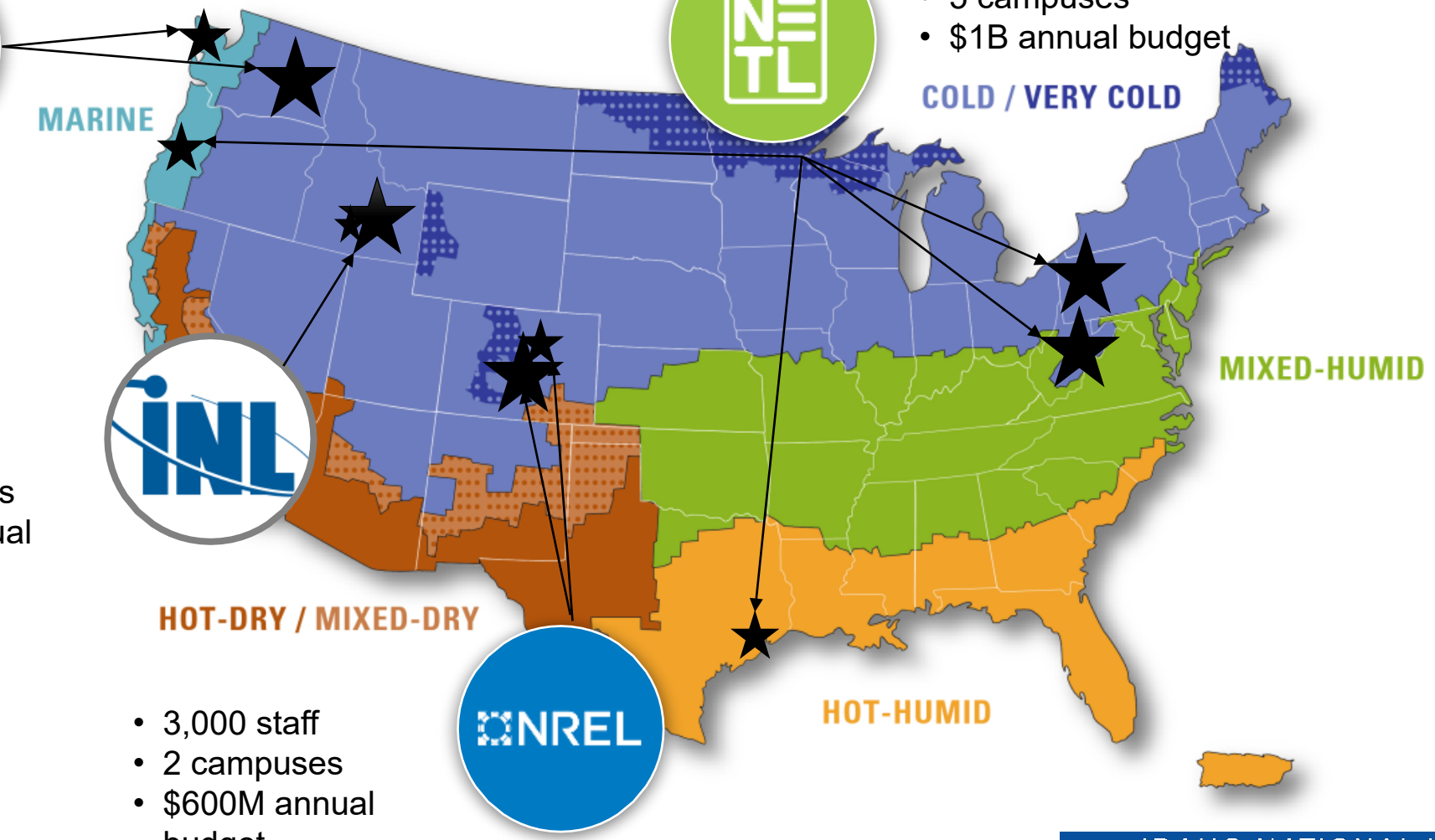
Net-Zero Labs:

Collaborating to Create a Clean Energy Future

Idaho National Laboratory

Net-Zero Pilot Labs Launch

Pilot Launch: 4 National Labs, 10 campuses, diverse regions



- 5,000 staff
- 2 campuses
- $1.2B annual budget

- 1,500 staff
- 5 campuses
- $1B annual budget

- 5,000 staff
- 2 campuses
- $1.4B annual budget

- 3,000 staff
- 2 campuses
- $600M annual budget

4 pilot labs - Vision to expand to all 17

Executive Order 14057

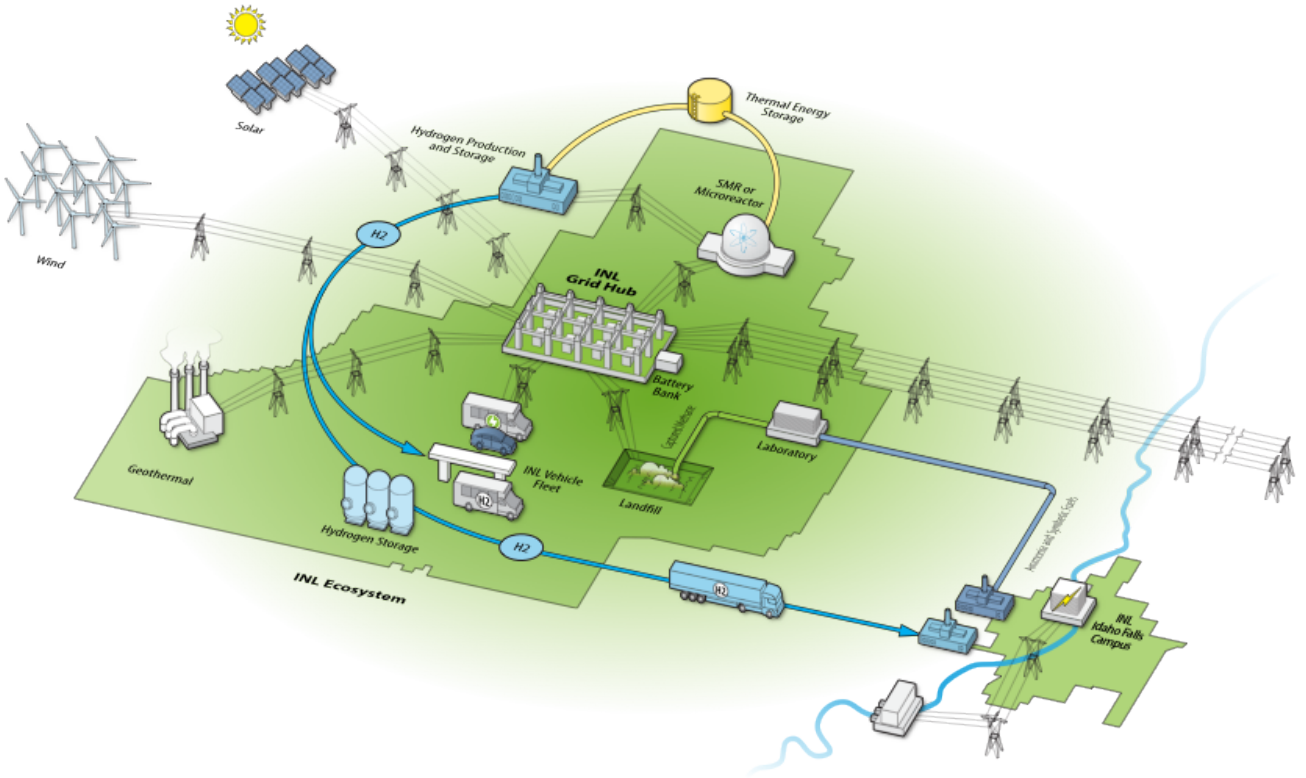
DECEMBER 08, 2021

Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

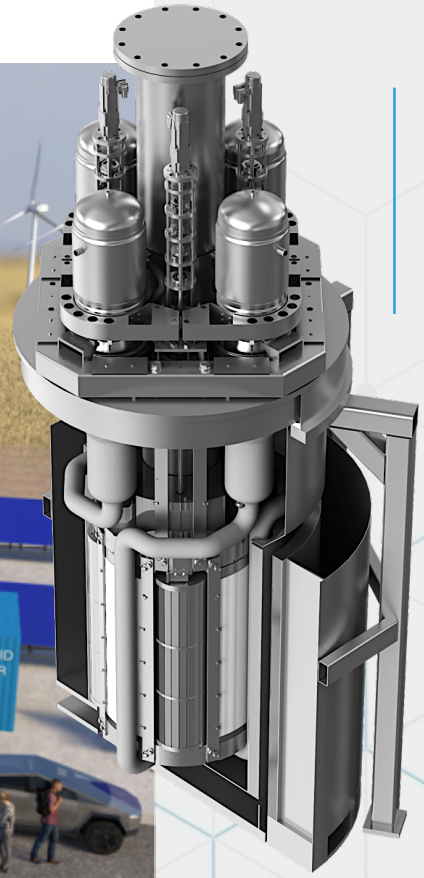
 ▸ BRIEFING ROOM ▸ PRESIDENTIAL ACTIONS

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in order to reestablish the Federal Government as a leader in sustainability, it is hereby ordered as follows:

Idaho National Laboratory: Advanced Nuclear Energy Solutions

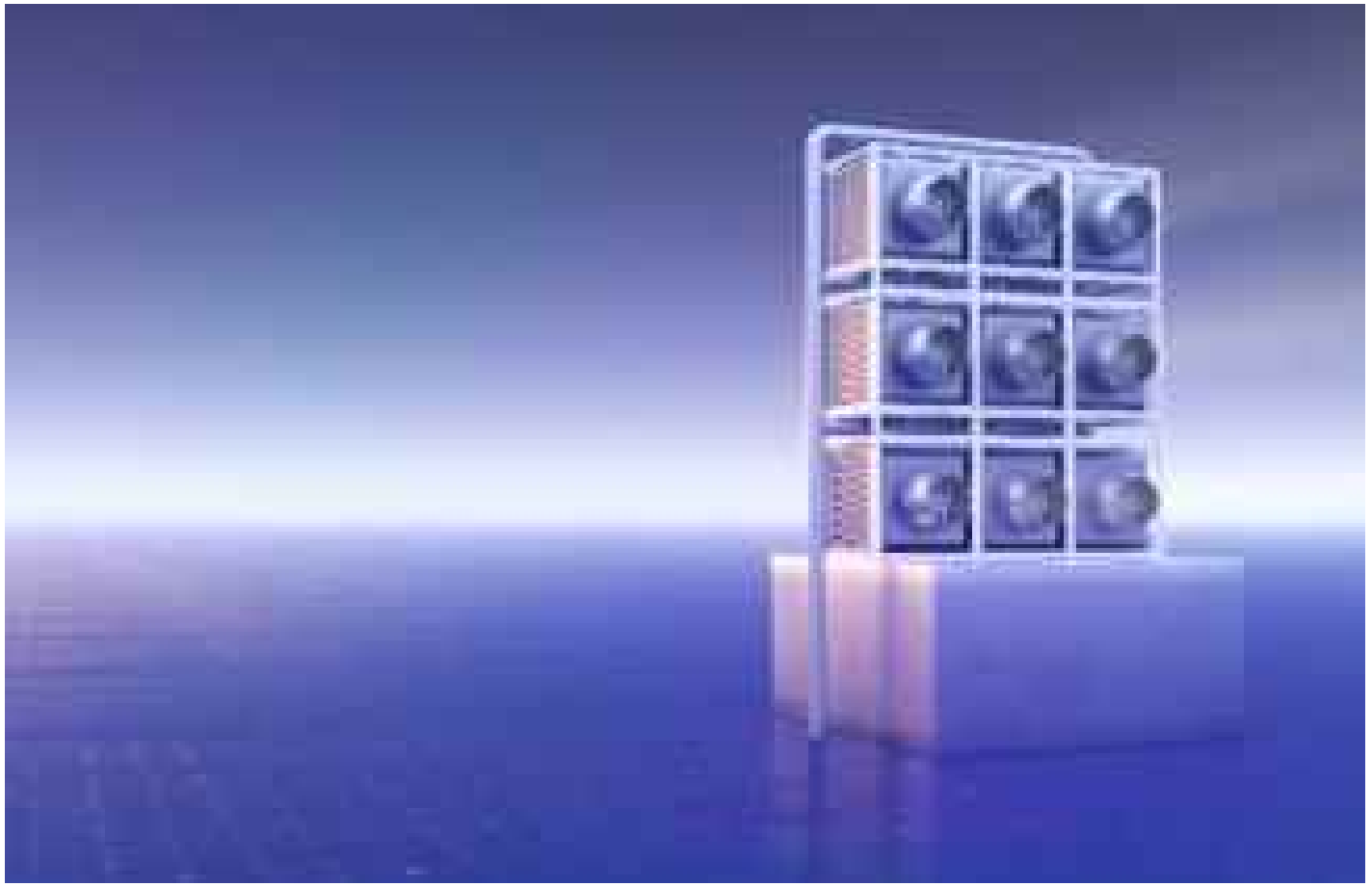


INL microgrid with MARVEL microreactor



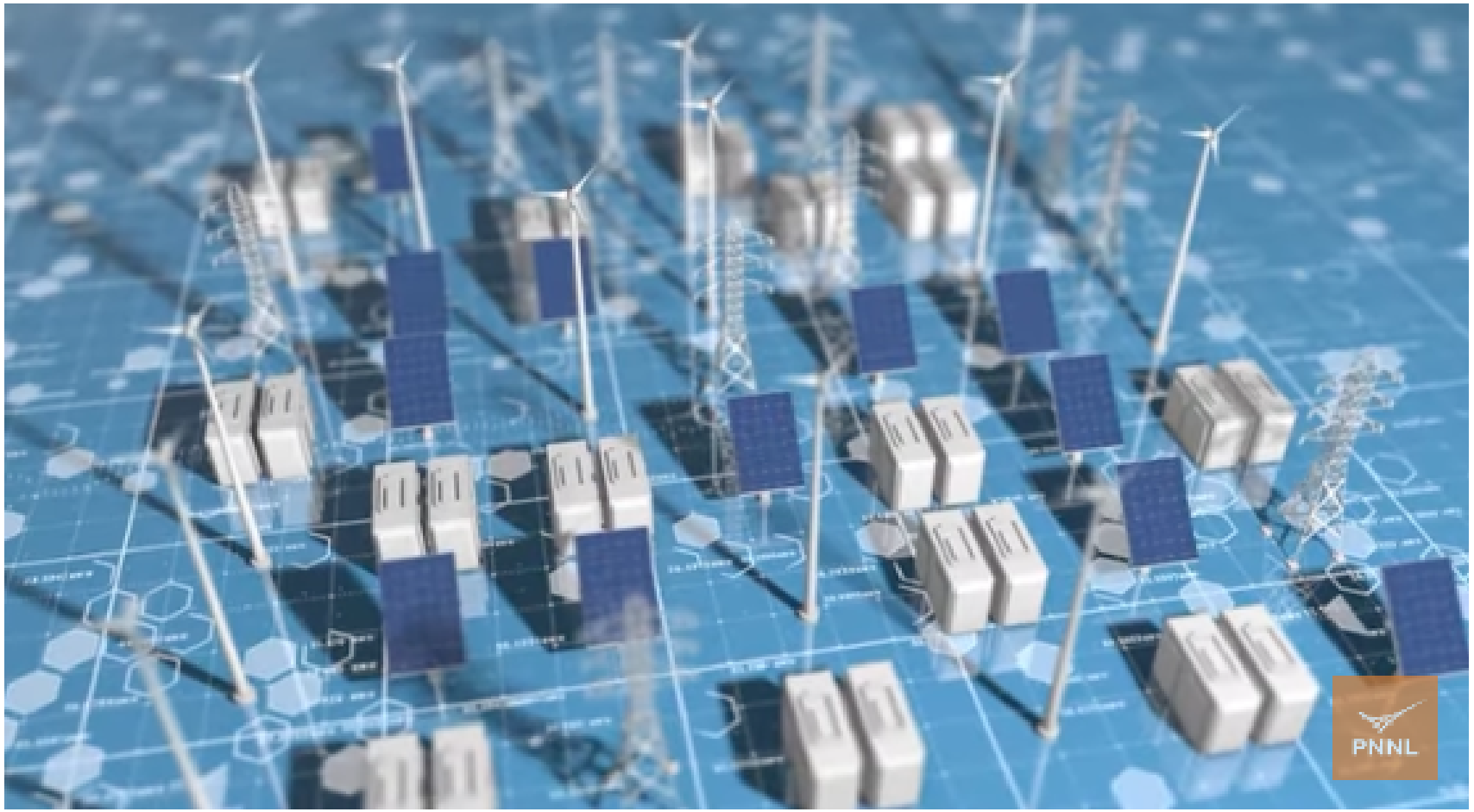
MARVEL TEAM
is innovating in every area of a microreactor

National Energy Technology Laboratory: Direct Air Capture Test Center



National Renewable Energy Laboratory: Autonomous Energy District

Pacific Northwest National Laboratory: Carbon-Responsive Demand Flexibility



Challenges, Opportunities, & Lessons Learned

- Challenges
  - Funding
  - Timeline
  - Moving from competition to collaboration
- Opportunities
  - Collaborations among all 17 national labs
  - Industry partnerships
- Lessons Learned
  - Complexity of implementation
  - Prioritization and sequencing of projects
  - Exploration of various funding profiles

Contact Information

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Visit our website at inl.gov/net-zero/

IDAHO NATIONAL LABORATORY

Backup slides

INL's Roadmap to Nuclear Energy Integration

Time to Market and Operability Case Study for On-Site Microreactor Deployment

SLT: Jhansi Kandasamy

Infrastructure & Siting

Developing infrastructure and siting resources necessary for onsite deployment

Licensing & Regulation

Determine efficient, timely and economical process

Fuel Cycle

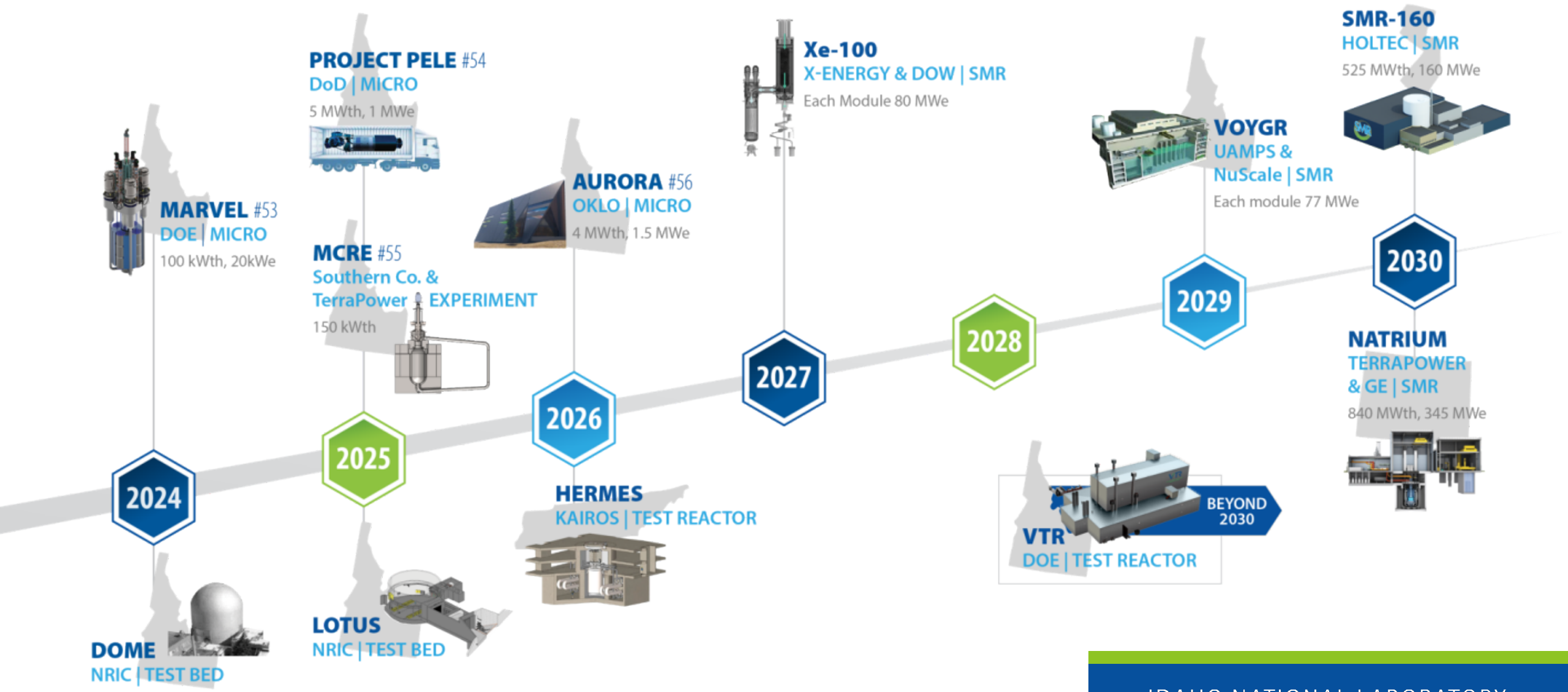
Entire cycle from fuel identification to waste management

Financial & Contracting

Identify financial structure and funding methodology

Public Engagement: Communication, Outreach, and Education

Accelerating advanced reactor demonstration & deployment



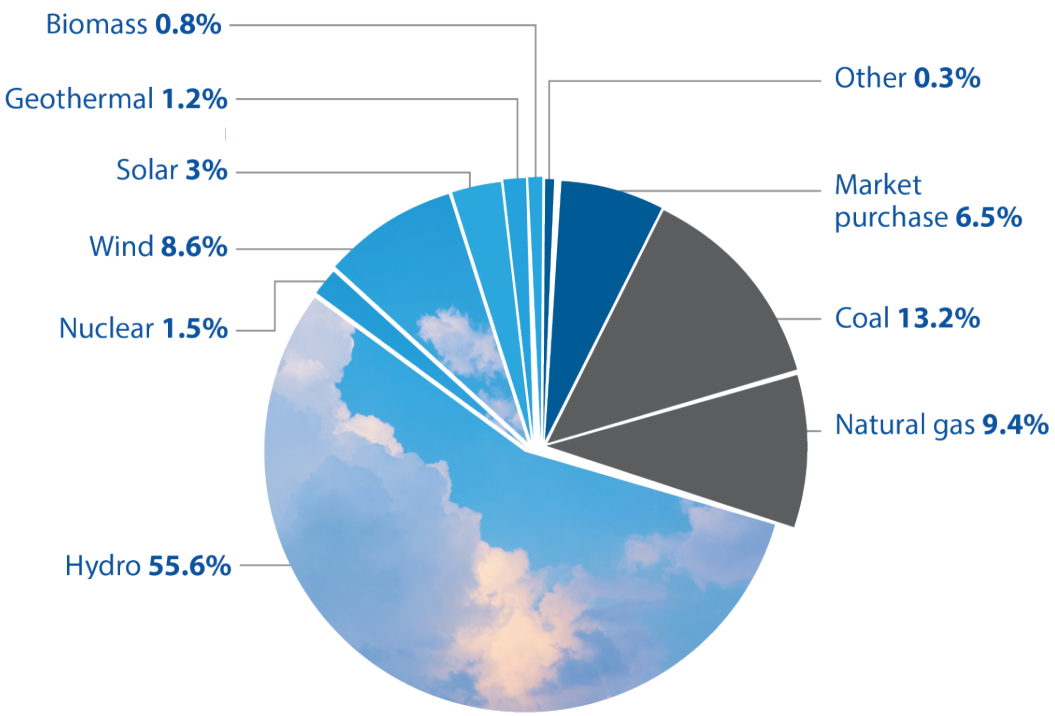
Scope 1: Transportation

- **~22% of INL's carbon emissions**
  - Light Duty Vehicles → 100% by 2027
    - GSA supply to meet demand
    - Infrastructure: Level 2-3 charging stations
  - Heavy Duty Vehicles (82 Motorcoaches)
    - Diesel Fuel → R99/Electric/H2
    - 2023: 6 motorcoaches total
    - Infrastructure: Level 3 charging Stations

Scope 1: Landfill, & Stationary Combustion

- Stationary Combustion- 7.4%
  - Pursuing electrification of DOE owned facilities
  - Improving building efficiencies in all facilities
- Landfill- 6%
  - Monitoring contract in place; baseline results 3Q23
  - Minimize landfill and recycle
- Research and development
  - CO2 capture (NETL)
  - Clean fuel options
  - Idling actions
    - CO2 capture, Batteries, H2

Scope 2: Purchased Electricity



- >53 % of CO_2e emissions
- Strategy
  - Collaborate with DOE and utilities
    - Nuclear → energy mix
    - Developing Nuclear Roadmap
  - Purchase clean energy
    - 100% carbon pollution-free electricity
  - R&D
    - Aligning mission orgs

Scope 3: Employee Commuting & Business Travel

- >24% of INL's carbon emissions
- Strategy:
  - Provide resources, including:
    - Public transit for employees
    - EV charging stations
    - Hybrid work options & technologies for telecommuting
  - Engage the community