Testimony on Senate Bill 635 - Small Modular Reactor Study

Chair Sollman, Vice Chair Smith, and Committee Members,

My name is Dirk Dunning. I respectfully submit testimony regarding Senate Bill 635 as a retired professional engineer with 25 years of experience at the Oregon Department of Energy, where I conducted oversight of the Hanford cleanup and addressed nuclear policy issues for Oregon.

I offer the following recommendations to strengthen this legislation:

1. Critical Economic Viability Concerns

- SMRs face severe financial viability challenges that must be thoroughly examined:
    - Long construction timeframes (8-10+ years) virtually guarantee these assets will become stranded in our rapidly evolving energy landscape
    - High upfront capital costs with uncertain returns create substantial financial risk
    - Private investors and utilities increasingly view SMRs as financially untenable, shifting financial burden to ratepayers and taxpayers
    - Limited commercial insurance availability necessitates Price-Anderson government backstops, socializing risks while privatizing profits
    - Decommissioning and waste management costs remain largely unresolved and likely underestimated
- Any economic analysis must assess whether SMRs represent responsible use of public resources given these substantial financial risks

2. The Fusion Revolution and Its Implications

- The imminent commercialization of fusion energy fundamentally changes the equation for nuclear investment:
    - Multiple companies (Helion, Commonwealth Fusion Systems, TAE Technologies) are demonstrating rapid progress toward commercial fusion
    - Helion has already signed power purchase agreements with Microsoft and expects commercial power delivery by 2028-2029
    - Fusion offers clean energy without long-lived waste, weapons proliferation risks, or meltdown scenarios
    - The timeline for SMR deployment creates a "valley of death" where fission reactors will likely be obsolete before they're operational
- Any responsible analysis must compare SMR investment against the transformative potential of fusion technologies arriving within the next 5-10 years

3. Climate Timeline Realities

- SMRs cannot be deployed at the scale and speed necessary to address the climate crisis:
    - Current climate science indicates we need significant clean energy deployment this decade
    - The lengthy licensing, permitting, and construction timeline for SMRs (likely extending into the 2030s) makes them ineffective for immediate climate action
    - Renewable energy plus storage can be deployed much more rapidly with continuously declining costs
    - Resources allocated to SMRs could be invested in immediate carbon reduction strategies with faster returns

4. Emerging Security Vulnerabilities

- The modern threat landscape has drastically evolved, creating new vulnerabilities for nuclear facilities:
    - The Russian-Ukraine war has demonstrated the revolutionary impact of drone warfare, including swarm attacks capable of overwhelming traditional defenses
    - Nuclear facilities require perfect security over 60+ year lifespans against rapidly evolving threats
    - Hardening requirements for SMRs against modern threats would significantly increase already challenging economics
    - The consequences of security failures at nuclear facilities are catastrophic and potentially permanent
    - Any security analysis must incorporate the most current threat assessments from Ukraine and other conflict zones

5. Procedural Safeguards for Balanced Analysis

- This analysis should be conducted by the Oregon Department of Energy with robust safeguards:
    - Strict conflict-of-interest provisions to ensure objective analysis
    - Transparent methodologies and public access to underlying data
    - Meaningful tribal consultation and environmental justice considerations
    - Diverse expert input from multiple disciplines including economics, security, climate science, and energy systems engineering

The Committee's careful consideration of these recommendations will ensure Oregon makes energy decisions based on current economic, technological, and security realities rather than outdated assumptions or wishful thinking.

Respectfully submitted,

Dirk Dunning