Testimony on SB 681 Pause Act

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I support passage of SB 681-- The Pause Act.

My 37 years as an economist and policy analyst with the Oregon Dept. of Energy and the Public Utility Commission help me understand the risks of energy investments, particularly those for large energy facilities

As a person receiving a PERS pension, I am deeply concerned about the fund being overburdened by private equity investments. These investments under-performed the Russell 3000 index for one, three, five and ten year returns, despite being illiquid and more risky. New private investments in fossil fuels will only compound this problem.

Especially concerning are two recent commitments. These are $350 million for the new Rio Grand liquified natural gas (LNG) export terminal in Dec. 2022 and $200 million for an expansion of an LNG terminal in British Columbia in June of 2022. These projects will take many years to complete. When they come on-line, the international natural gas market may be unfriendly to new gas supplies.

Large energy investments have always been risky

We have seen many stranded energy investments over the decades. The most spectacular were the WPPSS investments in five nuclear power plants in Washington state in the 1970s and 1980s. Only one plant was completed with billions in losses for investors.

The surge of building import LNG terminals in the U.S. in the 1970s is also instructive. There were forecasts that the U.S. was running out of gas. After many terminals were built, U.S. natural gas production increased substantially making many of the new import terminals useless. Again significant investment losses.

Long-lead time energy resources are risky because their economics depend on small price differences in energy markets that can shift quickly.

Large energy investments in fossil fuels are riskier now

The current surge in building export LNG capacity may potentially overwhelm world demand for the gas.

The U.S. Energy Information Agency reports that:

> ***North America's*** *liquefied natural gas (LNG) export capacity is on track to* ***more than double between 2024 and 2028,*** [emphasis added] *from 11.4 billion cubic feet per day (Bcf/d) in 2023 to 24.4 Bcf/d in 2028, if projects currently under construction begin operations as planned.*
> https://www.eia.gov/todayinenergy/detail.php?id=62984

Similarly,

> ***Global*** *Liquefied Natural Gas (LNG) liquefaction capacity is expected* ***to more than double by 2028****,* [emphasis added] *potentially increasing from 473 million tonnes per annum (mtpa) in 2023 to 968 mtpa in 2028 through new build and expansion projects.*
> https://www.businesswire.com/news/home/20241121628168/en/Global-LNG-Liquefaction-Industry-Report-2024-2028-Capacity-is-Projected-to-More-than-Double-with-North-America-Dominating---ResearchAndMarkets.com#

Yet all current world natural gas demand is satisfied at current prices while much of the Russian supply is off the market.

Competition from solar PV and batteries for power generation is another risk
One of the major uses of international gas is for power generation. The surge in solar PV generation is driving down the need for natural gas for power generation.

The main reason fossil fuel investments are likely to continue to underperform broader indexes is that solar photovoltaic costs fell by 90%, onshore wind by 70%, and batteries by 70% from 2009 to 2019.

These trends seem to be accelerating with new battery and solar technologies. As a result the U.S. Energy Information Administration (EIA) projects that U.S. solar PV generating capacity will grow by 250 percent between 2021 and 2027 with natural gas capacity basically flat https://www.eia.gov/todayinenergy/detail.php?id=64364.

By 2027 U.S. renewable generating capacity will nearly equal natural gas and far exceed declining coal generating capacity. EIA projects that natural gas used for U.S. generation will decline by 3% between 2024 and 2025. These are bad signs for investments in natural gas.

A key to forecasting future costs of PVs and batteries is what's in laboratories now. These bench-scale lab devices will be in the marketplace in seven to ten years. There are major breakthroughs happening in the labs that are likely to lead to large cost reductions within a decade. These include solid-state and flow batteries. Combination perovskite/silicon PV cells with higher efficiencies may be on the market in a few years. Perovskite is cheaper than silicon and may eventually be used alone with huge cost reductions for solar cells.

A key risk for LNG export terminals is that the shift from gas-powered generation to solar and batteries will dry up demand for gas in Asia and Europe. If so, it will be hard to sell LNG terminals for a profit.

Long lead-time illiquid fossil fuel investments are very risky in this energy environment.

The Pause Act would not require the Treasury to divest any assets. It would just halt new private-equity fossil fuel investments for five years.

Thank you for the opportunity to comment.