Utah law requires that the "proposed plan is physically ... feasible." Utah Code Ann. §73-3-8 (1) (a) (iii). A recent joint publication of the US Geological Survey (USGS) states that, "[b]ecause climate changes are traditionally detected over a period that spans multiple decades ... decisions with application horizons of greater than roughly 20 years might reasonably be informed by climate change information." (see Attachment B).

Nuclear power plants are generally licensed for 40 years; thus, according to the above statement by the USGS, planning for nuclear power plant water consumption can reasonably be informed by looking at climate change information. Several recent statistical and empirical studies, as well as climate model studies, show a reduction in runoff to the Colorado River, primarily due to increasing evapotranspiration and decreasing precipitation (please see Appendix B for a list of these references). The magnitude of the reduction from these studies is within a 10% to 30% range over the next 30 to 50 years. For example, a 2005 paper by authors from the USGS demonstrated that an "ensemble of 12 climate models" that accurately simulated changes in streamflow over the twentieth-century, predicted "10-30% reductions in runoff in ... mid-latitude western North America by the year 2050." (see Appendix C).

Such a change in streamflow could portend drastic changes in the ability to manage the Colorado River system, especially in terms of our ability to store water in Lake Powell and Lake Mead. For instance, assuming a 10% to 30% reduction in runoff by 2057, two authors from Scripps Institution of Oceanography found in a 2008 paper that "live storage [in Lake Powell and Lake Mead] will be depleted completely 23-40 years from now, or sometime in the span 2030 to 2047." Allowing for historical variability in river flow, in addition to a 20% reduction in runoff by 2057, the "probability of depleting both reservoirs' live storage is 50% by 2028." Alarmingly, the only "shortage option" that appeared to significantly lengthen the viability of Lake Powell and Lake Mead storage was a 25% reduction in water deliveries (see Appendix D).

Scenarios like these tend to show repeated shortfall years for the upper-basin states, like Utah, when the upper-basin states must cut into their own allocations from the Colorado River in order to supply an average of 7.5 Million Acre-Feet (MAF) to the lower basin states over each 10-year period. Furthermore, rising temperatures associated with global climate change "are expected to change the mix of precipitation toward more rain and less snow. Such precipitation shifts would affect the origin and timing of runoff, leading to less runoff from spring snowmelt and more runoff from winter rainfall, particularly in high-latitude or mountainous areas." (See Appendix E). These changes could significantly lower summer streamflows.

The applicant should be required to demonstrate, with high confidence, that such climatic changes will not significantly impair the nuclear power plants' ability to operate over its 40-year operational license, as compared to current capacity factors across the US (91.8% capacity factor as of2007); otherwise, the plan should not be considered "physically feasible" and should be rejected by the State Engineer.

Additionally, the high cost of nuclear power (recent cost estimates run from 12 cents per kilowatthour to 30 cents per kilowatt-hour) could make the nuclear power plant economically infeasible. The Applicant should demonstrate what the costs of the nuclear power plant will be (allowing for any subsidies), distribute those costs over the kilowatt-hours to be generated over