WHY IS GENERATING CAPACITY SO IMPORTANT?

Observing that differing proposed steady flow regimes generally represent the same annual quantities of hydroelectric energy production, some have questioned why utilities care so much about steady flow regimes. After all, if the utilities are getting the same amount of energy each year, what difference does it make?

• Annual Peak Demand is the Focal Point of Utility Resource Planning
• Annual Peak Demand Drives Capital Investment Decisions
• Significant Consequences for “Failing to Keep the Lights on”

WHY WOULD THERE BE MORE GAS-FIRED POWER PLANTS?

• Adoption of a steady flow regime at Glen Canyon Dam would result in the construction of more gas-fired power plants in Western states because peak season Glen Canyon Dam capacity is reduced. (see figure - right)
• Steady flow regimes shift Glen Canyon energy production from summer and winter months (when energy costs are higher) to spring and fall months (when energy costs are lower). While utility customers will experience increased costs, a shift in the timing of energy production is not the driver behind the construction of more gas-fired power plants.
• Electric capacity (measured in units of watts, kilowatts or megawatts) is distinct from electric energy (measured in units of watt hours, kilowatt hours or megawatt hours). Capacity is a measure of the amount of electricity that can be produced or delivered in an instant of time, in other words, when it is needed.
• Why would Glen Canyon generation be replaced by gas-fired power plants? Why wouldn’t Glen Canyon generation be replaced by other forms of renewable resource capability? Gas-fired power plants are closer to hydro plants in their operational flexibility and dependability. Intermittent renewable resources, such as wind and solar, do not have operational characteristics like those of hydro facilities that are needed for grid management, and cannot be depended upon to deliver power when needed.

THE ADOPTION OF A STEADY FLOW REGIME AT GLEN CANYON DAM WOULD RESULT IN:

1. THE CONSTRUCTION OF MORE GAS-FIRED POWER PLANTS IN WESTERN STATES;
2. INCREASED WATER CONSUMPTION AT EXISTING POWER PLANTS;
3. SIGNIFICANT REPLACEMENT POWER COSTS.
Electric service is analogous to emergency medical service. If a family member was having a heart attack, and you dialed 911 for assistance, how would you respond if the 911 operator told you that due to inadequate ambulance capacity, no service was available at that time, but perhaps later in the day, there might be an ambulance available? Electric customers react to service interruptions, especially during hot summer or cold winter periods, in some of the same ways that they may react to inadequate response to a 911 call. In both instances, society views a lack of capacity as unacceptable.

WHY WOULD WATER CONSUMPTION AT EXISTING PLANTS INCREASE?

• While differing Glen Canyon flow regimes may produce the same annual amounts of electric energy, a steady flow regime would shift Glen Canyon energy production from the summer months into other seasons.
• Consequently, summer season energy production by thermal power plants would be increased to replace energy that would have otherwise been generated at Glen Canyon.
• Because temperatures are higher during the summer season, more water will be consumed by thermal power plants that are producing higher levels of energy (to offset lost Glen Canyon energy) during the summer.
• Fresh water supply, especially in the arid West, is a valuable necessity. Adoption of a steady flow regime that shifts Glen Canyon energy production from the summer months into other seasons will increase thermal power plant water consumption.

WHAT ARE THE REPLACEMENT POWER COSTS?

• Since 1996, Glen Canyon Dam operations have resulted in the loss of approximately 1/3 of its generating capacity, (about 400-500 MW), costing approximately $50 million/year. Further flattening the flows to a steady flow regime has been estimated to result in the loss of an additional 300-700 MW of capacity, costing approximately $40-$70 million/year.
• According to a study by the National Renewable Energy Laboratory, “If hydro operations (at Glen Canyon Dam) were severely constrained, such as a requirement to maintain constant river flow...the WECC operating costs would increase by up to $1 billion per year”. These costs will be passed on to homeowners and businesses in the region. To avoid these unnecessary additional costs, Glen Canyon hydropower production should be enhanced, not further restricted.
• According to the Union of Concerned Scientists, replacing 500 MW of hydropower generation with coal generation would produce the emissions equivalent of 600,000 cars. Replacing the same amount of hydropower with gas would produce about one-half the emissions compared to coal.