PG&E Comments on SWRCB Draft OTC Policy

September 16, 2009

General Comments

- Improvements:
  - Coordination with Energy Agencies to better inform the policy & ensure grid reliability
  - Specific treatment of nuclear plants that acknowledges their differences
- Still needed:
  - Real alternatives to closed cycle cooling where it is found infeasible
  - More schedule flexibility in recognition of unique nature of electric system and procurement

General Comments

- Defining Best Technology Available
  - Tetra Tech study not adequate to find cooling towers feasible
  - No effective technology would achieve the Track 2 standard

- Compliance Schedule
  - Timeframes to permit/build new generation and transmission are overly optimistic
  - SWRCB should rely only on Energy Agencies on issues of compliance schedule flexibility related to grid and local reliability
  - Compliance schedule should be revisited as necessary rather than every two years
  - Recognition that air credits/permits are unavailable in many areas

Nuclear-specific Issues

- Nuclear Safety Exemption
  - The NRC has no process for this determination short of a (costly and time-consuming) license amendment.
- Required Additional Feasibility Studies may not be necessary
  - PG&E and SCE have both undertaken detailed cost and feasibility studies
    - Peer review these studies before initiating others
- If SWRCB finds additional studies are needed
  - Consultant should be selected by the Energy Agencies
  - Ensure that consultant has nuclear engineering expertise
- Nuclear Review Committee
  - CPUC representative should replace SACCWIS representative
  - Representatives should have nuclear expertise

Cost Benefit Variance

- Critical Addition to Draft Policy
  - Essential to weigh the costs of compliance with the benefits achieved
  - Consideration should be given to developing additional findings to support the variance, as well as to breadth of its applicability

- Develop Guidance for Regional Board Implementation
  - Definitions of cost, benefit, and wholly disproportionate are not fully developed
  - Clarity is needed to ensure consistent implementation

- Habitat Production Foregone
  - Methodology does not have a significant track record
  - Multiple levels of assumptions can create very broad ranges of "answers"
  - Consider initiating peer review or using existing approaches

Diablo Canyon – Rendering of Retrofit

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Diablo Canyon – Cooling Tower Retrofit

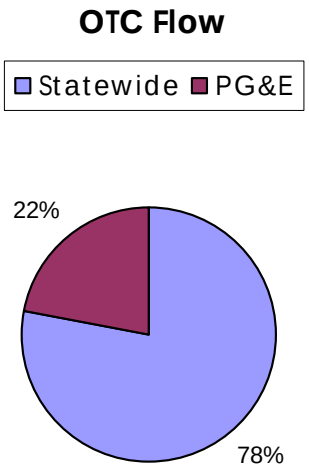
- Adverse Environmental Impacts
  - 12-15 MMT of GHG Emissions for Replacement Power
  - 282,000 tons/year of GHG for Lost Generation
  - 4.5 million Gallons of Diesel Burned During Retrofit
  - Thermal Discharge Limit Challenges – Off-shore Diffuser to Deal with Warmer, Saltier Discharge
  - Significant Visible Plumes—visible from San Luis Obispo 18% of the year
  - Salt Drift -- 7,600 Tons/Year

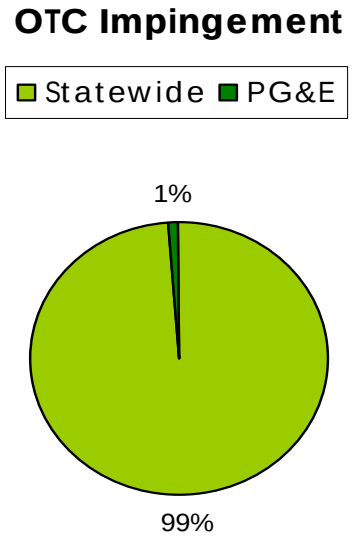
Diablo Canyon – Retrofit Cost Estimate

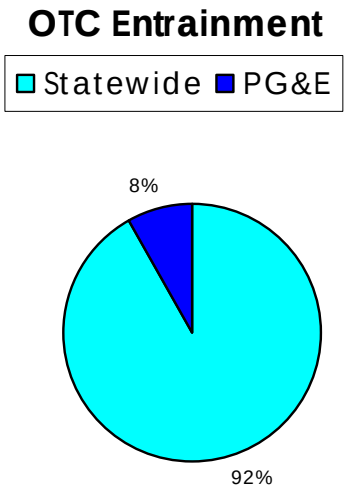
In Millions by Category of Work:

$325	Site Work – excavation, retaining walls
$316	Demolition, replacement of buildings, roads, parking
$298	Recirculating water/make-up water pumps, tunnels
$269	Permitting, engineering, project management, security
$242	Cooling Towers
$199	Electrical systems, process/instrumentation, utility relocation
$189	Worker transportation, commute wages, parking
$131	Upgrades – condensers, sewage treatment, SCW
$ 56	Blowdown water treatment, mixing station, diffuser
$ 50	Plant shutdown and start-up
$2,075	**Total Direct Costs**
$ 614	Project Indirect Costs and Contingency
$2,689	**Total Capital Costs**
$1,800	Replacement Power (at $70 MWh)
$4,500	**TOTAL PROJECT COSTS**

Diablo Canyon – Percentage of flow vs. impact







Data taken from SWRCB's Substitute Environmental Document.