WOLF CREEK
HYDROPOWER REHABILITATION ANALYSIS REPORT

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"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

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WOLF CREEK POWER PLANT

Location:

Russell County, KY

River Mile 460.9

Generation:

6 Units @ 51.8 MW

310.5 MW

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CONSTRAINTS

- SEPA MOU
- Minimum Flow
- Dissolved Oxygen
- Drawdown Limits
- Downstream Release
- Temperature
- Water Control Manual
- Refill Restrictions

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ANALYSIS

- Opinion of Probable Construction Cost
- Opinion of Schedule
- Water Availability & Energy Modeling
- Comparative Benefit-cost Analysis

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DEFINITION OF ALTERNATIVES

Alternative	Description	MW	Rated Plant Capacity (MW)	GWh/yr	Estimated Project Cost
Existing		51.8	310.5	972	
1	In-Kind	51.8	310.5	1,011.7	$158,786,000
2	5 Larger	67.5	379.8	1,006.3	$171,817,000
	1 Smaller	42.3			
3	6 Larger	67.5	405.0	996.4	$167,772,000
4	Alt.1 w/Larger Generator	62.5	375.0	1,019.3	$161,584,000
5	Alt. 1 w/ “design base”	51.8	310.5		$138,956,000
6	Alt. 1 w/reuse of Wicket Gates	51.8	310.5	1,009.4	$154,994,000

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ALTERNATIVES CARRIED FORWARD

Alternative	Description	MW	Rated Plant Capacity (MW)	GWh/yr	Estimated Project Cost	Outage (Years)
Existing		51.8	310.5	972		
1	In-Kind	51.8	310.5	1,011.7	$158,786,000	5.8
3	6 Larger	67.5	405.0	996.4	$167,772,000	6.2
4	Alt.1 w/Larger Generator	62.5	375.0	1,019.3	$161,584,000	5.8
6	Alt. 1 w/reuse of Wicket Gates	51.8	310.5	1,009.4	$154,994,000	5.8

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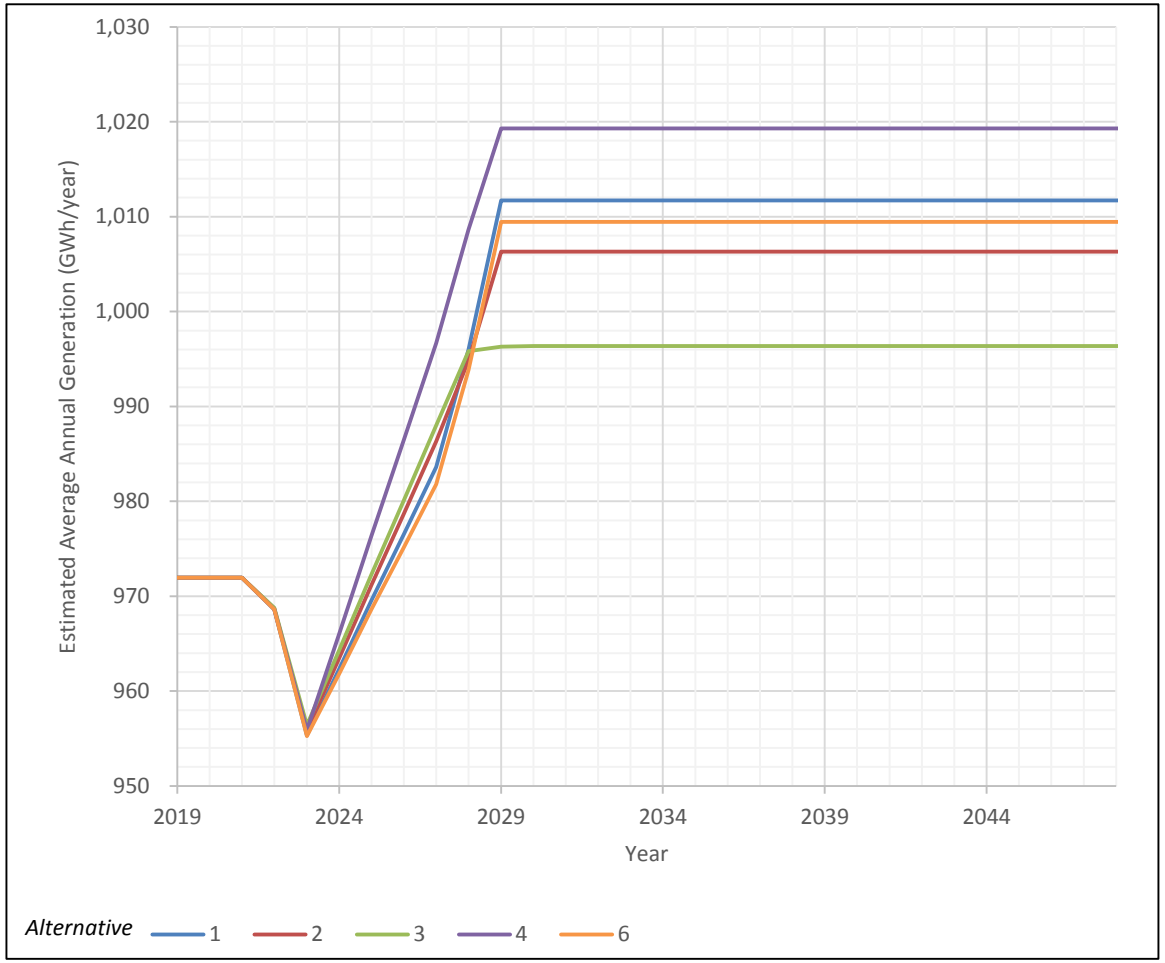
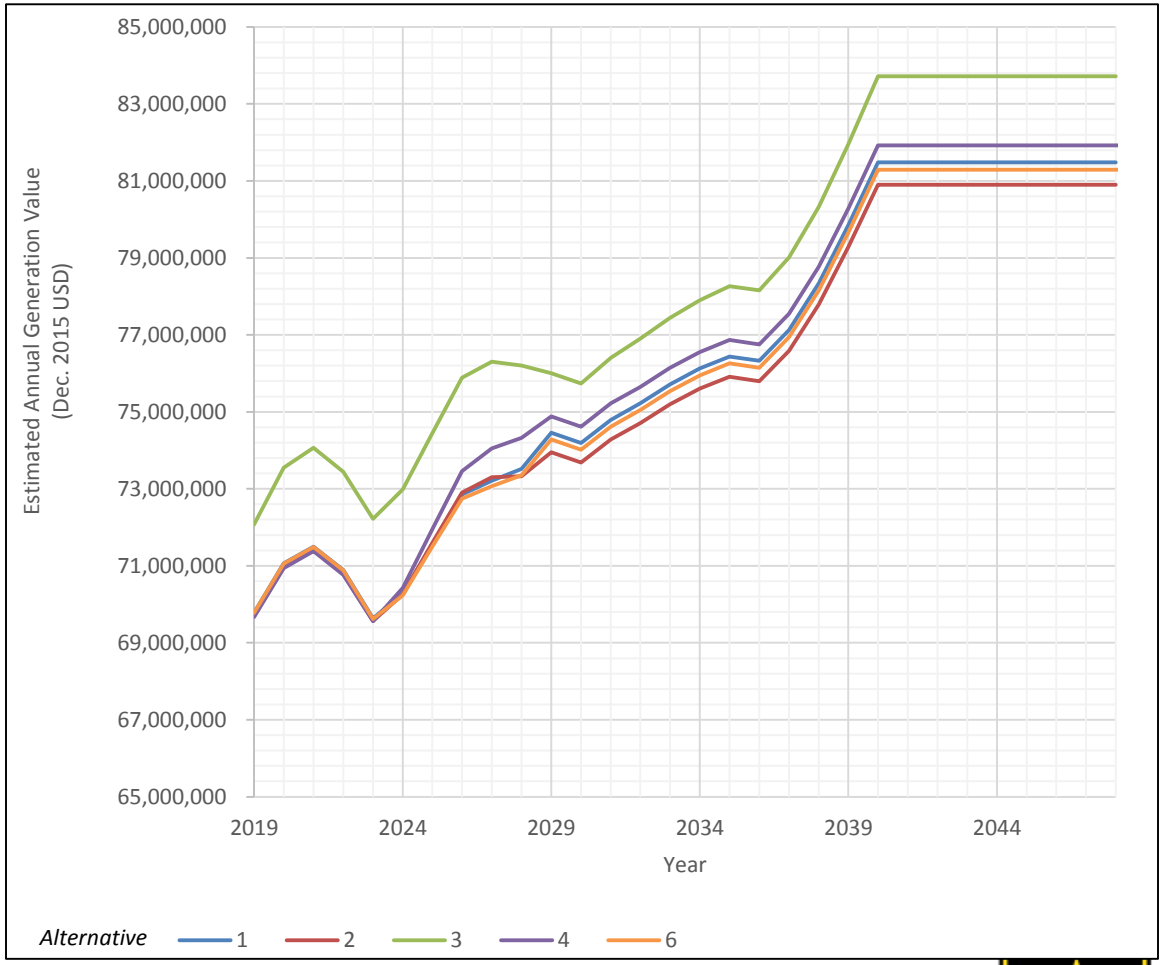
PROJECTED BENEFITS





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ENVIRONMENTAL & CULTURAL

- Minimal Change in Tailwater Flows
  - Unlikely to induce erosion

- National Environmental Protection Act
  - Categorical Exclusion

- Section 106, National Historic Preservation Act
  - Changes inside the plant = Further Coordination

CONCLUSION & RECOMMENDATION

- Keep all six units the same size
  - In-Kind (1 & 6)
  - Incidental Uprate (4)
  - Uprate (3)

- Carefully review peak/off-peak assumptions (duration and value)

- Additional steps (not in scope of study)
  - Prepare equipment laydown plan during design phase
  - Dissolved Oxygen – Additional Information
  - Inspect & Certify powerhouse crane
  - Ensure contractor completes stress & fatigue analysis for any critical, reused components

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