UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

IN RE

SOUTHERN CALIFORNIA EDISON
KERN RIVER NO. 3 HYDROPROJECT

DOCKET NO. P-2290-122

KERN RIVER BOATERS' COMMENTS, STUDY REQUESTS, AND INFORMATION REQUESTS IN RESPONSE TO SCOPING DOCUMENT TWO AND THE APPLICANT'S PROPOSED STUDY PLAN

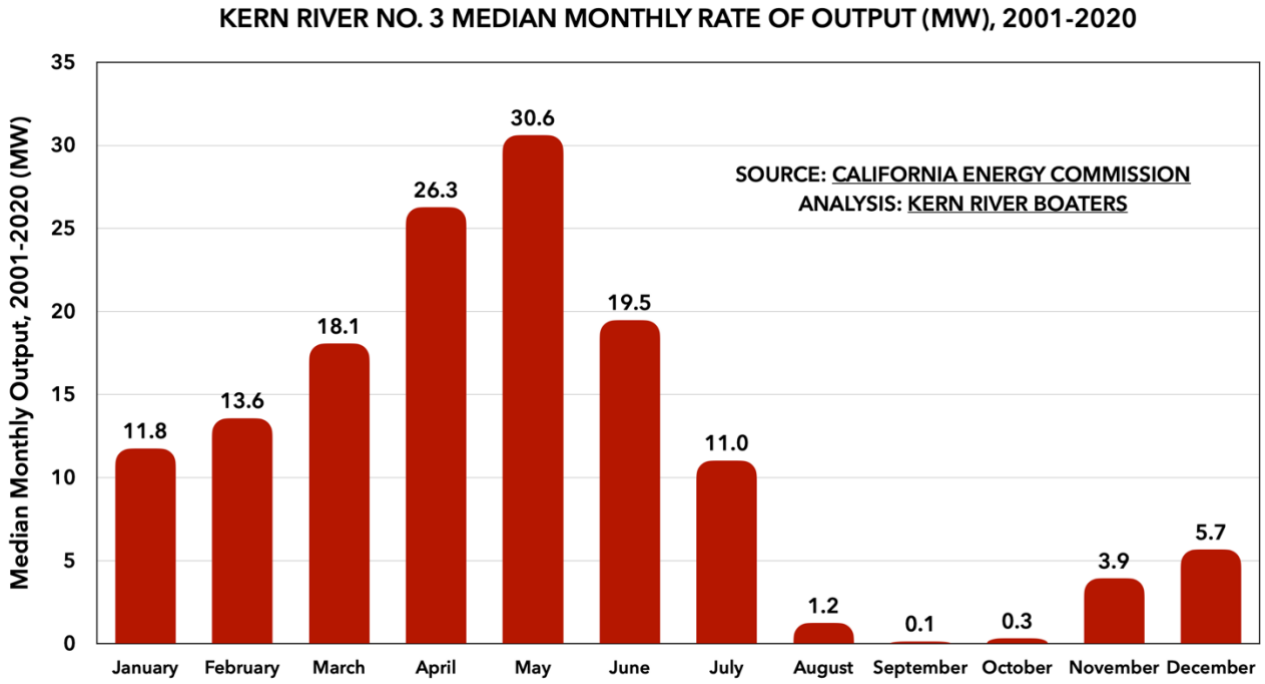

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TABLE OF CONTENTS

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I • INTRODUCTION

Kern River Boaters ["KRB"] is a nonprofit, all-volunteer California public benefit corporation[1] of more than 1,000 persons[2] supporting the interests of noncommercial whitewater recreators in the Kern River watershed, including the improvement of aesthetics, river health, and . For the past decade, KRB has been the primary advocate for whitewater recreation within the Kern River Valley, and has been instrumental in Commission proceedings designed to secure additional boating days[3], obtain[4] and protect[5] online gauges, oppose[6] non-license appropriation of water for hydro operations, uphold recreation reporting requirements[7] , and preserve unspoiled river canyon views.[8] KRB has also engaged in USACE proceedings to decommission the Borel hydroproject[9], USFS proceedings for increased river access[10], pathway safety[11], and boater parking[12], BLM

[1] http://kernriverboaters.com
[2] https://www.facebook.com/groups/kernriverboaters
[3] FERC eLibrary No. 20121214-5237
[4] https://www.dreamflows.com/graphs/day.682.php
[5] FERC eLibrary No. 20211008-5059
[6] FERC eLibrary No. 20210603-5168
[7] FERC eLibrary No. 20141112-5302
[8] FERC eLibrary No. 20210611-5039
[9] https://www.kernriverboaters.com/s/2016-01-04_KRB_COMMENT_ISABELLA_SEA3.pdf
[10] https://www.facebook.com/groups/kernriverboaters/permalink/1591464781132599/
[11] https://www.kernriverboaters.com/blog/2017/8/14/success-at-the-limestone-put-in
[12] https://www.kernriverboaters.com/blog/2015/3/12/parking-to-be-re-established-at-the-limestone-takeout

proceedings for river access under COVID restrictions[13], and county proceedings to preserve a bridge gauge. KRB has also submitted numerous public records requests, attended annual USFS outfitters' meetings on the Kern, and engaged with its members and the public through social media[14] in support of its mission.

On March 04, 2022, the Commission filed its second scoping document ["SD2"] in this proceeding. On March 07, 2022, Southern California Edison ("Edison") filed its Proposed Study Plan ["PSP"]. This filing is in response to both.

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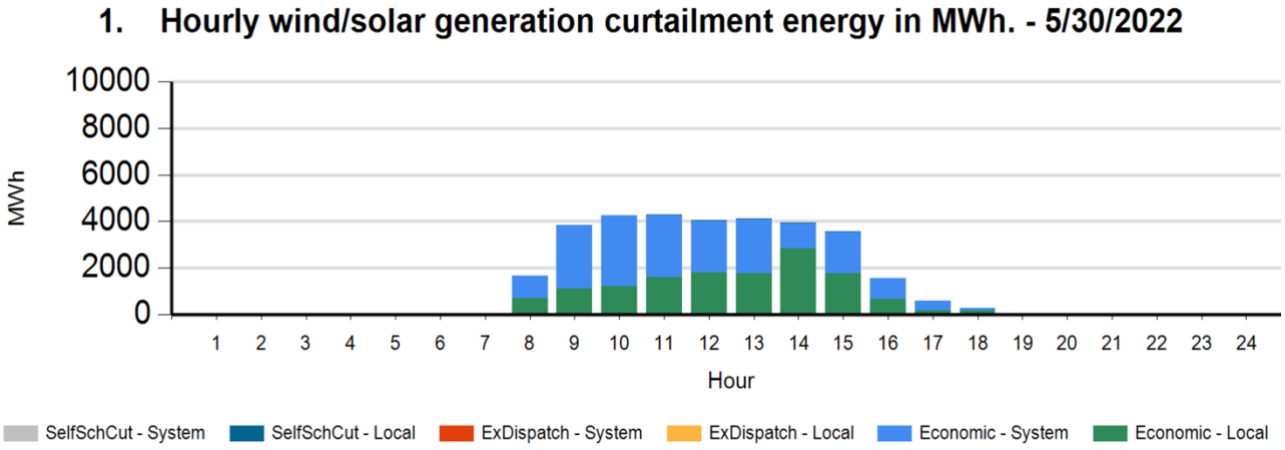

Earlier this week, on Memorial Day, KR3 was generating at a rate of about 20 MW, leaving the 16-mile dewatered reach below Fairview Dam at an unboatable and unhealthy fish flow. Meanwhile, about 200 times as much renewable energy was curtailed during peak daylight hours.[15]

[13] https://www.kernriverboaters.com/blog/2021/3/8/2021-usfs-outfitters-meeting
[14] https://www.facebook.com/groups/kernriverboaters
[15] http://www.caiso.com/Documents/Wind_SolarReal-TimeDispatchCurtailmentReportMay30_2022.pdf

II • COMMENTS ON SCOPING DOCUMENT TWO

2.3 ISSUES RAISED DURING SCOPING

General Comments

FERC: *The NEPA document will describe the existing environment of potentially affected resources in the project area and where appropriate include supporting information, and an analysis of the effects of the proposed project and alternatives, including reasonably foreseeable effects, on potentially affected environmental resources, including the issues identified in SD2 and any additional project-related issues identified during the licensing proceeding for the project.* (SD2 at 6-7.)

KRB: SD2 fails to acknowledge Executive Order 13990[16] — issued well before SD2, on President Biden's first day in office — directing the Commission and CEQ to "to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years . . . ." That direction includes review of the 2020 rule that eliminated the consideration of "cumulative impacts" under NEPA.[17] Prior to the issuance of SD2, CEQ had already shepherded the amendment of its rules through the public commenting period to reverse that elimination and confirm that NEPA requires an analysis of direct, indirect, and cumulative effects, the last of which include "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time."[18] Since the issuance of SD2, CEQ has implemented EO 13990, effective May 20, 2022.[19] We request that the Commission issue a new scoping document reflecting the inclusion of cumulative impacts in the NEPA document for this proceeding.

Alternatives to the Proposed Project

FERC: *[I]t is premature to demonstrate whether any potential serious resource issues exist that could not be mitigated with appropriate measures to include in any license issued for the project that would make decommissioning a reasonable alternative.* (SD2 at 7.)

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[16] https://www.govinfo.gov/content/pkg/FR-2021-01-25/pdf/2021-01765.pdf
[17] See former 40 C.F.R. 1508.7
[18] https://www.federalregister.gov/documents/2021/10/07/2021-21867/national-environmental-policy-act-implementing-regulations-revisions
[19] https://www.federalregister.gov/documents/2022/04/20/2022-08288/national-environmental-policy-act-implementing-regulations-revisions

KRB: The large majority of commenters disagree with the Commission; more than two-thirds indicate that they favor the inclusion of a no-project alternative for study.[20] These commenters include highly educated leaders of business, industry and government, as well as established public interest organizations that represent thousands of people. The nature of the resource effects raised to this point — namely, the project's injurious effects on water quality, the health of the fishery, aesthetics, health, public safety, and recreation[21] — make it premature to conclude that legally adequate mitigation of the project's effects is possible. We remind the Commission that Edison manager Martin Ostendorf recently was unable to state that the project penciled out financially[22] and that Edison's local business allies Tom Moore, Evan Moore, and Eric Giddens all told the attendees at a recent American Whitewater meeting that the project was unlikely to survive financially more than ten or fifteen years into a new license term.[23] This proceeding is not supposed to be a mere referendum on the status-quo resulting in minor deviations from current practices; rather, it is supposed to be akin to the level of cost and effort associated with issuing a new license, as it constitutes an application to irrevocably re-commit this common resource for power rather than innumerable other public and environmental purposes.[24] We accordingly ask the Commission to issue a new scoping document that includes a no-project alternative for study in the NEPA document.

FERC: *Commission policy is to not recommend requests for decommissioning cost studies and/or establishment of decommissioning funds where there is no evidence in the project record indicating the life the project will end during the term of any new license that may be issued for the project and there is no indication that the licensee would lack the financial resources if it were to be decommissioned.* (SD2 at 7.)

KRB: As to the first point about the project's longer term financial viability, Edison's allies in the local community — Tom Moore, Evan Moore, and Eric Giddens — have been telling people the project will likely not last more than 10-15 years. That is consistent with Mr. Ostendorf's failure to affirm that the project pencils out to American Whitewater. It is also

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[20] See FERC eLibrary Nos. 20220118-5095, 20220118-5126, 20220119-5000, 20220119-5041, 20220119-5101, 20220119-5180, 20220120-5030, 20220120-5035, 20220120-5087, 20220120-5089, 20220120-5104, 20220120-5130, 20220120-5131, 20220120-5141, 20220121-5004, 20220121-5006, 20220121-5024, 20211221-5001, 20220120-5002, 20220119-5001, 20220119-5018, 20220120-5004, 20220120-5010, 20220120-5011, 20220120-5020, 20220120-5036, 20220120-5070, 20220120-5079, 20220120-5099, 20220120-5138, 20220120-5168, 20220121-5000, 20220121-5001, 20220121-5003, 20220120-5005, 20220120-5119 at 3-4 & 2022013-4000 at 14, 17, 19 & 26

[21] See KRB SD1 at 88-90 [FERC eLibrary No. 20220120-5139]

[22] FERC eLibrary No. 20220103-4000 (PM session) at 15-16

[23] December 01, 2021 American Whitewater KR3 Meeting (recorded)

[24] *Yakima v. FERC*, 746. F.2d 466, 476-477 (9th Cir. 1984)

consistent with Edison's efforts to limit environmental and social study in its PAD and PSP. Without data supporting the project's value in the contemporary energy market that can withstand scrutiny — assuming such data exists — Edison manager Wayne Allen's assertion of Edison's intent to take a new license to term[25] is worth the digital paper on which it was written. By excluding a decommissioning fund at the outset — and potentially taking that cost out of Edison's decision to continue operating this small, old project — the Commission is putting its thumb firmly on the side of continued operation absent substantial evidence in support. The Commission first states it will not consider decommissioning "until an applicant proposes" it (SD2 at 27), but an applicant will only do that on financial grounds. The cost of decommissioning plainly constitutes a perverse incentive to endlessly continue the operation of a marginally unviable project.[26] But the Commission states it will not take the only step it could to remove that incentive: requiring a decommissioning fund. Biasing this proceeding in this manner, which so obviously favors continued operation of projects whose contribution to society has passed, is inconsistent with the EPCA, modern environmental policy, and contemporary social values. We accordingly ask that the Commission issue a new scoping document that includes study of a no-project alternative and a decommissioning fund.

FERC: *The no-action alternative serves as our environmental baseline for comparison with other alternatives.* (SD2 at 8.)
KRB: Our point was that a no-project *alternative* should be studied under NEPA — at no point did KRB argue for a no-project "baseline."[27] The Commission's response is accordingly inapt. We remind the Commission that, under NEPA as implemented by CEQ's "Phase 1" implementation of EO 13990[28], the "no-action baseline" must include an analysis of no-action's cumulative effect on the protected river and corridor's resources[29], which can most equitably be evaluated with a no-project study. For these reasons, we ask the Commission to issue a new scoping document that includes study of a no-project alternative.

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[25] See Allen Letter at 2 [FERC eLibrary No. 20220224-5109]
[26] In *Mead Corp.*, 72 FERC ¶ 61,027, the Commission conceded the obvious: "that the potentially high cost associated with decommissioning a project might prompt a licensee to continue operating a project though the project is only marginally viable economically. *Id.* at 61,068." (*Tacoma v. FERC*, 460 F.3d 53, 72 (D.C. Cir. 2006.) We are asking that this reality be acknowledged and applied in the present proceeding.
[27] See KRB SD1 at 88
[28] https://www.federalregister.gov/documents/2022/04/20/2022-08288/national-environmental-policy-act-implementing-regulations-revisions
[29] https://ceq.doe.gov/docs/ceq-publications/ccenepa/sec4.pdf ["the baseline condition of the resource of concern should include a description of how conditions have changed over time and how they are likely to change in the future without the proposed action"]; see generally, https://ceq.doe.gov/publications/cumulative_effects.html

FERC: *[T]he Commission fulfills its responsibility when deciding whether to authorize a hydropower project as it must give equal consideration to non-developmental values that are in the public interest, which can include the protection, mitigation, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality*. (SD2 at 8.)
KRB: We note that nothing in the above quote is coextensive with the duty of USFS under the FPA to impose license conditions necessary for the protection and utilization of the forest. We ask that the Commission issue a new scoping document that makes clear it will undertake its own balancing of developmental and non-developmental values that could result in stronger social and environmental license conditions than those mandated by USFS.

FERC: *Commission policy is to evaluate the economics of hydropower projects, as articulated in* Mead Corp. (SD2 at 8.)
KRB: Relying on principles developed in a 1995 Commission proceeding to quantify the developmental value of a project that operates in a 2022 energy environment known for real markets, new technologies, mass storage, a deluge of renewables, SB 100, CAISO, and the like[30] is an invitation for judicial review. The FPA establishes a balancing framework that must evolve with the times and the real-world environment confronting that framework. *Mead Corp*. fails to properly capture the contemporary developmental value provided by this project to contemporary society and the energy market in which the project operates. It also fails to consider or analyze scoping comments[31] that the project's developmental value is not absolute in terms of the net power it generates, but rather is variable based on the times of day, week, season, and year during which it generates. The project's value to society is at its peak when it has fuel (river water) and market pricing is high. The project has less value when its fuel source is diminished or when market pricing is low. The project has diminished fuel levels at predictable times: low water years, mid-summer through winter, and the trough of shoulder season diurnals. Market pricing is low at predictable times, too: the "Off-Peak" and "Super Off-Peak" periods of time identified by CAISO: daylight hours on weekends and holidays along with all of March and April. Relatively high periods of project developmental value may constrain opportunities for mitigation in the eyes of the Commission, but relatively low periods of project value should under the statutory mandate afford such opportunities. We ask that the Commission issue a new scoping document that indicates it will not draw conclusions about the project's developmental value through the simplistic prism of net generation, but instead through a

[30] See KRB SD1 at 11-22
[31] *Ibid*.; see also FERC eLibrary No. 20220103-4000 (PM session) at 29-32 & 51-52

meaningful analysis of project developmental contribution that takes into account time, date, and season of generation as well social demand and the market in which that generation occurs.

FERC: *[We] compar[e] the current cost to produce project power to an estimate of the cost to provide the same amount of energy and capacity for the region using the most likely alternative source of power (cost of alternative power)*. (SD2 at 8.)
KRB: We agree that replacement power is a salient issue and commend a valuation that is (1) region-specific (reflecting the energy environment in which the project operates) and (2) based on real-world alternative sources of power within that region. But SD2 fails to consider or analyze scoping comments and evidence that, based on the contemporary energy market, replacement energy for reductions in project output would mostly come from renewables (wind, solar, storage) with that percentage rising to 100% less than halfway through any new license (2045). The Commission already understands that, nationwide, the large majority of replacement energy is carbon-free: it has stated that more than 23,000 of the 29,000 GW of newly installed capacity in 2021 was wind and solar.[32] With regard to this particular project in this particular energy market, it is reasonably foreseeable that replacement energy will be 100% renewable less than halfway through a new license. Renewables are coming online at a rate of 6GW per year. SB 100 requires a 100 percent carbon-free energy market by 2045 — just 19 years into a new license term. And the market for replacement energy is already well over half renewable: "63 percent of the state's electricity retail sales came from non-fossil fuel sources in 2019," according to the California Energy Commission.[33] That 63% figure has only increased since 2019 and will continue to increase over the course of this proceeding and any new project license. Given these facts, it would be irrational for the Commission to posit that all replacement energy for project losses to mitigation will come from natural gas generators. It would also be irrational to posit that all replacement natural gas generators are carbon positive — renewable natural gas[34] is an essential element of our market's energy policy going forward, and is scheduled to constitute 12% of natural gas usage in this state by 2030.[35] Again, we ask that the Commission evaluate the developmental value afforded by this project in the context of the specific energy market and environment in which it operates — not some fictional land in which all replacement energy is carbon-gas fired — and we ask that the

[32] https://cms.ferc.gov/media/energy-infrastructure-update-december-2021
[33] https://www.energy.ca.gov/news/2020-07/new-data-shows-nearly-two-thirds-californias-electricity-came-carbon-free
[34] https://www.epa.gov/lmop/renewable-natural-gas
[35] https://www.naturalgasintel.com/california-natural-gas-utilities-required-by-2030-to-supply-12-rng/

Commission clarify its commitment to such a real-world evaluation in a new scoping document.

FERC: *[O]ur economic analysis is based on current electric power cost conditions and does not anticipate or estimate changes in fuel costs that could occur during a project's license term.* (SD2 at 8.)
KRB: Current electric power cost conditions in this region are highly variable — both inter-day and seasonally — and include increasing periods of negative pricing, where the generator must pay to participate in the market, and curtailment, where the generator is ordered to stand down to avoid the threat of overgeneration.[36] We ask that the Commission issue a new scoping document that indicates it will account for this variability in its economic analysis.

We further question how, in conducting the delicate balance between developmental and non-developmental values demanded by the FPA, the Commission does not consider the externalized costs of the project's diversion of water — social costs to the human environment and environmental costs to the natural environment[37] — in its assessment of the *economic cost* of the project's fuel. The project's "fuel" is the water taken from the Wild and Scenic North Fork Kern, and that fuel comes at a cost paid for by the public and the environment, not Edison.[38] That economic cost should not continue to be externalized with a hand-wave from the Commission. To the contrary, according to Commissioner Glick, "governmental policies that internalize the externalities associated with electricity generation are essential to reaching an efficient market outcome."[39] We accordingly ask that the Commission issue a new scoping document that clarifies the externalized costs for this project's fuel will be internalized — *i.e.*, directly included as economic costs — in its economic analysis of energy production at the project rather than merely orthogonally in a mitigation analysis.

FERC: *Commission practice uses natural gas-fired combined-cycle plants based on data provided by the U.S. Energy Information Administration in an annual report.* (SD2 at 9.)
KRB: This practice is not supported by substantial evidence for this project. According to the California Energy Commission, gas-fired plants accounted for less than half of all generation in this state in 2020 — 37.06% to be exact[40] — and that figure will steadily decline during the course of this proceeding and any new license term. A reasonable

[36] KRB SD1 at 11-22
[37] See KRB SD1 at 88-90 and references therein
[38] See KRB SD1 at 31, 76 & 84
[39] 163 FERC ¶ 61,236 (dis. op. Glick, Com.) at 6
[40] https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2020-total-system-electric-generation

estimate of the cost of replacement power based in fact should account for the fact that, according to the Commission itself, natural gas plants accounted for less than 19% of new generating capacity nationwide in 2021.[41] The U.S. Energy Information Administration says natural gas will account for a similarly low fraction of new capacity this year[42] while solar and batteries will account for 60% of new capacity.[43] These facts call into serious question the Commission's national policy of conducting economic analyses based on the unwarranted assumption that the most likely source of replacement energy will be gas fired plant(s). More important for the regional analysis of this project, EIA reports that not 19%, but *zero* percent of new generators in California will be gas-fired this year, or the next year, or the next two after that.[44] We accordingly ask that the Commission issue a new scoping document reflecting the energy realities in this region, where combined cycle gas plants would neither come online nor supply the majority of energy required to replace the small amount of energy generated by this project.

FERC: *Our environmental analysis will evaluate various flow regimes that are in the public interest as well as their effects on environmental resources and power generation.* (SD2 at 9.)
KRB: A reasonable analysis of a flow regime's "effects on . . . power generation" must acknowledge that, at times, environmental and/or recreational flow regimes not only serve those public interests but also assist developmental values — *i.e.*, the contemporary energy market and grid. There are times right now that marginal additional generation is harmful to our grid — those times being signaled by the imposition of renewable curtailments and/or negative electricity market pricing. The effects of environmental and/or recreational flow regimes at those times benefits *both* non-developmental values (the public interest in recreation and the environment) *and* the developmental values (the grid). Limiting generation at KR3 at times of curtailment or negative pricing would (1) marginally decrease the amount of regional renewable curtailment required and (2) marginally decrease regional supply and congestion, thereby increasing energy prices and the feasibility of additional renewables, all of which is desirable at those times.[45] We ask that the Commission issue a new scoping document acknowledging the role these real-world effects play in its balancing analysis.

FERC: *[S]taff will conduct the NEPA review in accordance with CEQ's new regulations.* (SD2 at 9.)

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[41] https://cms.ferc.gov/media/energy-infrastructure-update-december-2021 at 4
[42] https://www.eia.gov/todayinenergy/detail.php?id=50818
[43] https://www.eia.gov/todayinenergy/detail.php?id=51518
[44] https://www.eia.gov/todayinenergy/detail.php?id=50436
[45] See KRB SD1 at 11-22

KRB: As noted above, the "new" CEQ regulations referred to by the Commission have been repealed. The path to repeal was cleared well before the issuance of SD2. The Commission is accordingly obligated to study the project's cumulative effects, and we ask that it acknowledge that obligation in a new scoping document.[46]

FERC: *[I]n the Additional Information Request issued on January 13, 2022, staff requested that SCE provide any available information regarding the 300-cfs diversion and effects of changing flows on the tunnel walls of the conveyance system.* (SD2 at 9.)
KRB: SD2 fails to consider or analyze scoping comments that call for the purported tunnel maintenance flow to be evaluated by an *independent* engineering firm.[47] "Simply taking a corporation's word" on this issue "is irresponsible."[48] Edison proposes[49] to internally validate its claim for the need to limit recreational mitigation to a maximum of exactly half of the flows it can take at Fairview Dam. We need not point out the in-fact conflict of interest and very strong potential for bias and self-service in this proposal. We simply point out that public confidence in an internal study will be non-existent, and the study will not have answered the questions of whether some lesser quantity of water — 50 cfs, 100 cfs — would suffice for tunnel integrity. We accordingly ask that the Commission direct Edison to implement our proposed tunnel flow study[50] or incorporate its core elements (independence and a comparison of rates of damage at varying flow levels) into Edison's OPS-1.

FERC: *The dam safety program at the Kern River 3 Project and other Commission projects is set forth in Part 12 of the Commission's regulations and is independent of the relicensing process. However, any information relating to dam safety concerns developed during this relicensing proceeding will be forwarded to our Division of Dam Safety and Inspections (D2SI) for their review.* (SD2 at 10.)
KRB: Given the events at sister project KR1 in 2013 that resulted in raising the hazard status of that project from low to significant notwithstanding the Commission's ongoing dam safety regulatory scheme, this response is inadequate. The same scheme, operators, and regulators were in place when KR1 suffered a catastrophic failure that, fortunately, did not injure anyone, but did cause two major landslides completely closing Highway 178 —

[46] https://www.federalregister.gov/documents/2022/04/20/2022-08288/national-environmental-policy-act-implementing-regulations-revisions
[47] See KRB SD1 at 113-114
[48] FERC eLibrary No. 20220119-5041
[49] March 22, 2022 PSP Meeting
[50] See *post*, at 94

the main highway in and out of the Kern River Valley — for 10 days.[51] SD2 fails to analyze scoping comments that call for the safety of the project — specifically its conveyance of millions of pounds of water per minute 800 feet above a highway — to be evaluated by an independent engineering firm. We ask that the Commission take these comments seriously and implement our proposed project safety study[52] before it again finds that one of its ostensibly "low" hazard projects actually poses a significant threat to life and property.

FERC: *In the proposed hydrology study (Appendix E of the PAD) SCE indicates that it will compile the available hourly flow data from various gaging stations at the project.* (SD2 at 11.)
KRB: This is not true. The proposed hydrology study does not include the compilation of data from project gauges at Salmon Creek or Corral Creek. SD2 further fails to acknowledge either (1) KRB's information request for NFKR hourly flow data or (2) KRB's information request for existing hydrology data at the encumbered creeks.[53] We ask that the Commission direct Edison to provide that data without waiting for "technical analysis" as proposed so the public and managing agencies can begin timely work on fully capturing the effect of the primary project operation: removing water from these waterways.

FERC: *We have modified Section 4.1.2 Water Resources, to clarify that staff will analyze the potential effects of project operation on water quality which includes effects on dissolved oxygen, temperature, and potentially other parameters as necessary to inform potential conditions of any license issued for the project.* (SD2 at 11.)
KRB: SD2 fails to clearly require study in response to scoping comments[54] of the project's effects on arsenic and fecal coliform concentrations downstream of Fairview Dam, both of which were examined in the last proceeding.[55] Edison has acknowledged that elevated concentrations of arsenic have been detected below Fairview Dam, and its source appears to be below the dam.[56] KRB pointed out[57] that the project's diversion of a significant portion of flows likely increases the concentration of arsenic by removing clean waters that could further dilute arsenic concentrations. The managing agencies are committed to increasing water quality in this protected reach and should investigate whether further limitations on the project's diversion of arsenic-free water could decrease the quantity of arsenic below.

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[51] https://www.bakersfield.com/columnists/lois_henry/lois-henry-mother-nature-got-help-shutting-down-hwy-178/article_2378aaf7-7ab2-594a-97ec-4091ce4d1ddc.html
[52] See *post*, at 80
[53] See KRB SD1 at 132-133
[54] See KRB SD1 at 32-34, 96-97
[55] 1996 EA at 23, 25-26 [FERC eLibrary No. 19960409-0312]; see also PAD at 5-48 & 5-49
[56] PAD at 5-46
[57] KRB SD1 at 34 & 72

SD2 fails to identify this issue. We ask that the Commission issue a new scoping document that includes the study of the project's effect on arsenic concentrations in the dewatered reach and makes clear its inclusion of the study of fecal coliform.

FERC: *We have modified Section 4.1.7 Land Use and Aesthetic Resources, to include project effects on the Wild and Scenic River segments of the Kern River.* (SD2 at 13.)
KRB: SD2 fails to acknowledge that KRB raised the issue of project effects on aesthetics both within *and below* the Wild and Scenic stretch.[58] We ask that those effects be included in a new scoping document.

FERC: *We will carry out a full Section 106 review involving the identification, National Register evaluation, and assessment of effects to all historic properties (including cultural and tribal resources) identified within the project's Area of Potential Effects (APE).* (SD2 at 14.)
KRB: SD2 fails to acknowledge KRB's comment the proposed APE is too narrow in scope. At the December 03, 2020 TWG meeting, SCE consultant Audrey Williams conceded that the river itself could be considered a cultural resource given the role it plays in human lives. The project negatively alters the river's constituent components and as such alters its character and the manner in which the public interfaces with it. The APE should accordingly include the river and its corridor as a project-affected area for cultural analysis. As Edison states, "The Project is situated *on* the NFKR and on Salmon and Corral Creeks."[59] This project is "on" this Wild and Scenic River and its tributaries. We ask that the Commission issue a new scoping document that extends the APE for cultural analysis — indeed, for all resource categories, given the project's "situation" — to include the dewatered river corridor upon which the project resides.

FERC: *Section 4.0 Developmental Analysis of the NEPA document will address the power and economic benefits of the Kern River 3 Project.* (SD2 at 16.)
KRB: SD2 fails to acknowledge that project operations do not always afford developmental (power and economic) benefits; to the contrary, generation of energy at KR3 is at times harmful to our energy market. Whenever KR3 generates while there are negative prices or a risk of overgeneration to the grid — which occurs frequently during daylight hours on weekends and in March and April — it threatens overgeneration and detracts from the profitability of more modern, rational generators such as wind and solar.[60] We ask that the Commission issue a new scoping document that makes clear it will not limit its developmental analysis to the project's power and economic "benefits," but also fully

[58] KRB SD1 at 75-77
[59] PAD at 5-240 (italics added)
[60] KRB SD1 at 13-18

capture the power and economic harms the project imposes, at times, in the current regional energy environment.

FERC: *We have revised Section 4.1 Resource Issues of the scoping document to include Section 4.1.10 Environmental Justice to indicate the need to analyze whether minority and low-income communities are subject to disproportionately high adverse human health or environmental effects as a result of the Kern River 3 Project.* (SD2 at 16.)
KRB: SD2 states that only project effects on *local* economic and environmental justice communities will be studied.[61] SD2 fails to acknowledge the project's potential disproportionate effects on members of those communities who *visit* the NFKR to escape, if only for a long weekend or so, the conditions that render them members of those communities. (KRB SD1 at 84.) Under Executive Order 12898, FERC and USFS have been directed to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."[62] It did not limit itself to local minority or low-income populations. "For each alternative, [the agency should] consider whether there are any significant adverse impacts to minority and low-income populations . . . that would appreciably exceed impacts to the general population or other appropriate comparison group."[63] Again, the directive is not limited to local populations. Noncommercial recreation in the protected river corridor is free — whether near the river or in it. And camping in the corridor is either free (in undeveloped sites) or available at a nominal charge amounting to less than $10 per person for an average sized family or group. There are limited opportunities for quality outdoor riverine recreation in Southern California at these prices. Moreover, as Southern California's principal river, the Kern plays an important role in introducing members of the community to the awe and beauty that a watershed has to offer. Beyond the aesthetic costs that project facilities impose on the river corridor, the principal project operation of removing water from the river at Fairview Dam imposes its

[61] See SD2 at 17 & 31 ["minority and low-income communities **that may occur in the project-affected area** and that could potentially be subject to disproportionately high adverse human health or environmental effects as a result of continued project operation"]
[62] Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 1994, 59 FR 7629; see also Executive order 14008, 86 FR 7619 at § 219 [directing FERC to develop "programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts"]
[63] https://www.energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-DOE-greenbook.pdf#page=37

own costs: on the aesthetic quality of the flows in the river, on the health of the river fishery and its riparian ecosystem, on the quality of the water in the river, and on the quantity of water in the river for contemplation, amazement, fishing, tubing, or boating. Those costs are most heavily borne by communities of low incomes, who tend to live in environmentally challenged areas and who do not have as much disposable income to seek replacement activities of equal quality. Project operations accordingly have a disproportionate impact on economic and environmental justice communities, and those impacts should be studied and analyzed in the NEPA document. KRB brought this issue to the attention of the Commission prior to its issuance of SD2.[64] We accordingly ask that the Commission issue a new scoping document that includes the study of the project's effects on members of economic and environmental justice communities who visit and recreate in the project-affected area.

FERC: *In addition, we have added Section 7.0, Proposed NEPA Document Outline, to the scoping document, which includes sections describing the Commission's responsibilities regarding environmental justice issues based on Executive Orders 12898 and 14008 and for analyzing potential environmental justice issues.* (SD2 at 16.)
KRB: The fact that SD2 was responsive to President Biden's Executive Order 14008 calls into question its failure to be responsive to Executive Order 13990 on cumulative impacts, as discussed above.

3.1.1 Existing Project Facilities

FERC: *Water from the intake at Fairview Dam is directed [to] a steel siphon before connecting to a regulating pressure flume, forebay, and penstocks as described below.* (SD2 at 20.)
KRB: SD2 fails to acknowledge that the pressurized steel siphon support structure is cracked and leaking[65], as is the flume between it and the forebay.[66]

FERC: *These water releases may occur if excess tunnel pressure needs to be reduced or water in the flowline needs to be drained.* (SD2 at 21.)
KRB: SD1 fails to acknowledge that releases into this spillway may radically disrupt baseline wildlife conditions in Cannell Creek.[67] We ask that the Commission issue a new scoping document that studies the environmental effect of siphon drainage into Cannell Creek.

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[64] KRB SD1 at 84
[65] https://vimeo.com/kernriver/siphon
[66] See KRB SD1 at 78-79 & KRB ALLEN RESPONSE at 6-7 [FERC eLibrary No. 20220304-5058]
[67] See KRB SD1 at 47

FERC: *The powerhouse contains the two original Francis reaction-type turbines rated at 57,400 horsepower (hp) total and two generators with a total normal operating capacity of 36.8 MW. The total installed capacity of the powerhouse is 40.2 MW.* (SD2 at 22.)
KRB: The "total installed capacity of the powerhouse" is not 40.2 MW. As established in the 1996 EA, "the powerhouse hydraulic capacity of 670 cfs is not achieved because the water conduit maximum limit is 620 cfs."[68] 40.2 MW is accordingly not achievable given the project's configuration. The operating *capacity* — normal or not — of the project is 36.8 MW.[69] FERC's issuances should state this matter accurately and in plain language. KRB pointed this matter out to the Commission prior to the issuance of SD2.[70] We ask that the Commission issue a new scoping document correcting the misstatement.

3.1.2 Existing Project Operation

FERC: *The project is operated in compliance with existing regulatory requirements, agreements, and water rights to generate power.* (SD2 at 23.)
KRB: KRB noted that Edison "took advantage" of a USFS clerical error in adopting the 2002 recreation settlement terms into its final 4(e) recommendations. The error inadvertently removed the week before Memorial Day from the rec flow schedule. On February 27, 2014, USFS Recreation Officer Nancy Ruthenbeck wrote her colleagues, "The weeklong flows [before Memorial Day] *were very important to us*. In no way, did we expect to have [those flows unprotected] and I wasn't aware of what SCE was apparently doing until Mr. Duxbury filed his complaint. . . . Before SCE and the whitewater interests [reached] the settlement agreement, they approached us to see if we would be amenable to whatever they settled on. *We told them* yes, *as long as they abided by some sideboards* that we gave them. *The weeklong flows* [before Memorial Day"] *was one*." (Italics added.) On March 03, Dennis Smith replied that "SCE had agreed up front to the original language *but has been taking advantage of our one word mistake* from the original settlement agreement between AW and SCE."[71]

KRB also noted[72] that Edison appropriated the additional 5-10 cfs "buffer" for minimum power generation without a license amendment or environmental review and violated the 40 cfs continuous minimum flow requirement in December 06-07, 2020. These compliance issues are under review in the Ninth Circuit.[73] We ask the Commission issue a

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[68] 1996 EA at 5, available: https://drive.google.com/file/d/1ffpmCehSI6e2tRGSMmZW7XNazpSdpKSZ
[69] 1996 EA at 5 & 78; 1996 License Order at 32 [77 FERC § 61,313]
[70] KRB SD1 at 5 & 18-19
[71] FERC eLibrary No. 20160428-5206 at 4
[72] KRB SD1 at 9-10 & 87-88
[73] See *KRB v. FERC*, Ninth Circuit No. 22-70075

new scoping document that does not misleadingly affirm applicant compliance with existing conditions.

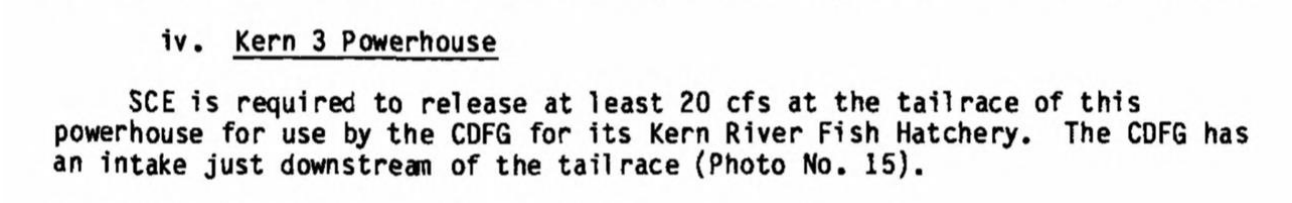
Edison has also improperly filed its entire application for the tunnel rehabilitation project as CEII because, as Edison later conceded, "only certain pages contained CEII." (FERC eLibrary No. 20130806-5052 at 3.) Edison informed FERC it would "appropriately segregate the public and CEII" portions and "resubmit the Applications" for public inspection. (*Id*., at fn. 6.) KRB does not see any such resubmission in the FERC eLibrary.

FERC: *SCE is required to maintain continuous minimum flows or natural flows, whichever is less, as measured by SCE gage 401 below Fairview Dam.* (SD2 at 23.)
KRB: This statement is false. In response to KRB's complaint[74] that Edison failed to meet its continuous minimum flow responsibility on December 06 & 07, 2020, the Commission held there to be no violation because Edison "provide[d] data that confirm[ed] that [Edison was] able to meet the ***daily average*** minimum instream flow requirement."[75] Commission staff should be aware of — and the governing scoping document for this proceeding should accurately reflect — the Commission's reluctance to enforce the plain language of the current license, which uses the term "continuous" to describe the minimum instream flow condition, not "daily average." Under the Commission's "daily average" minimum instream flow requirement, Edison is free to provide the bulk of its MIF obligation when wholesale energy prices are low and leave the riverbed well below the MIF number when energy prices are high, or for any number of other reasons (maintenance, inadvertence). KRB remains committed to enforcing the plain terms of the MIF, and has done so by means of petition to the Ninth Circuit to review the Commission's "daily average" holding.[76] We accordingly ask that the Commission issue a new scoping document that accurately states the Commission's view that the MIF in the current license requires a "daily average minimum instream flow," not a continuous one.

FERC: *Additionally, SCE provides 35 cfs year-round to the California Department of Fish and Wildlife's Kern River Planting Base Hatchery via the project conveyance system and the powerhouse tailrace.* (SD2 at 24.)
KRB: By stating that the 35 cfs diversion is for the hatchery, SD2 misstates the record. There is no evidence in the FERC record that the hatchery requires 35 cfs. According to CDFW, flows of 27 to 28 cfs are "well above" the hatchery's needs.[77] In fact, back at the

[74] FERC eLibrary No. 20210603-5168; see generally FERC Docket No. P-2290-120
[75] FERC eLibrary No. 20211217-3014 at 3-4 (emphasis added)
[76] See *KRB v. FERC*, Ninth Circuit No. 22-70075
[77] FERC eLibrary No. 20040916-0026 (unpaginated) at .pdf 3; see also 1996 EA at 6 & 58 [hatchery operations require "25 cfs"]

time the river was designated Wild and Scenic, the hatchery flow was only 20 cfs[78]:



iv. Kern 3 Powerhouse

SCE is required to release at least 20 cfs at the tailrace of this powerhouse for use by the CDFG for its Kern River Fish Hatchery. The CDFG has an intake just downstream of the tailrace (Photo No. 15).

The 35 cfs diversion was established because, as the 1996 EA states, "[t]he minimum flow of water required for [project generator] operation is 35 cfs." The purpose of the 35 cfs diversion is accordingly not to satisfy the requirements of the hatchery; rather, it is to "allow Edison to generate power" since "the minimum flow for generation at the powerhouse is 35 cfs."[79] It is inaccurate and a misleading euphemism to refer to Edison's diversion of the first 35 cfs at Fairview Dam (which Edison has since increased to 40-45 cfs without a license amendment due to its unilateral appropriation of a 5-10 cfs "buffer"[80]) as a "hatchery" flow or to otherwise characterize the purpose of the diversion of that amount of water as being driven by hatchery operations. KRB brought these facts to the Commission's attention well before its issuance of SD2.[81] We accordingly ask that the Commission issue a new scoping document that accurately reflects the purpose of the 35 cfs diversion being for minimum power generation, not hatchery operations.

FERC: *SCE includes an additional buffer of 5 to 10 cfs in the hatchery flow to count for the diurnal flow fluctuations.* (SD2 at 24.)
KRB: SD2 does not acknowledge that this additional flow "buffer" is not included in the language of the current license and that Edison appropriated it in 2004 without license amendment or environmental review.[82] KRB brought these facts to the Commission's attention before its issuance of SD2.[83] We accordingly ask that the Commission issue a new scoping document that accurately recites the foundation of the 5-10 cfs minimum power generation (MPG) flow "buffer" — a flow and buffer, we note, that is taken **at the expense of the MIF** in the **hottest months** of the **driest years** when the fishery below Fairview Dam is at its greatest environmental risk[84]:

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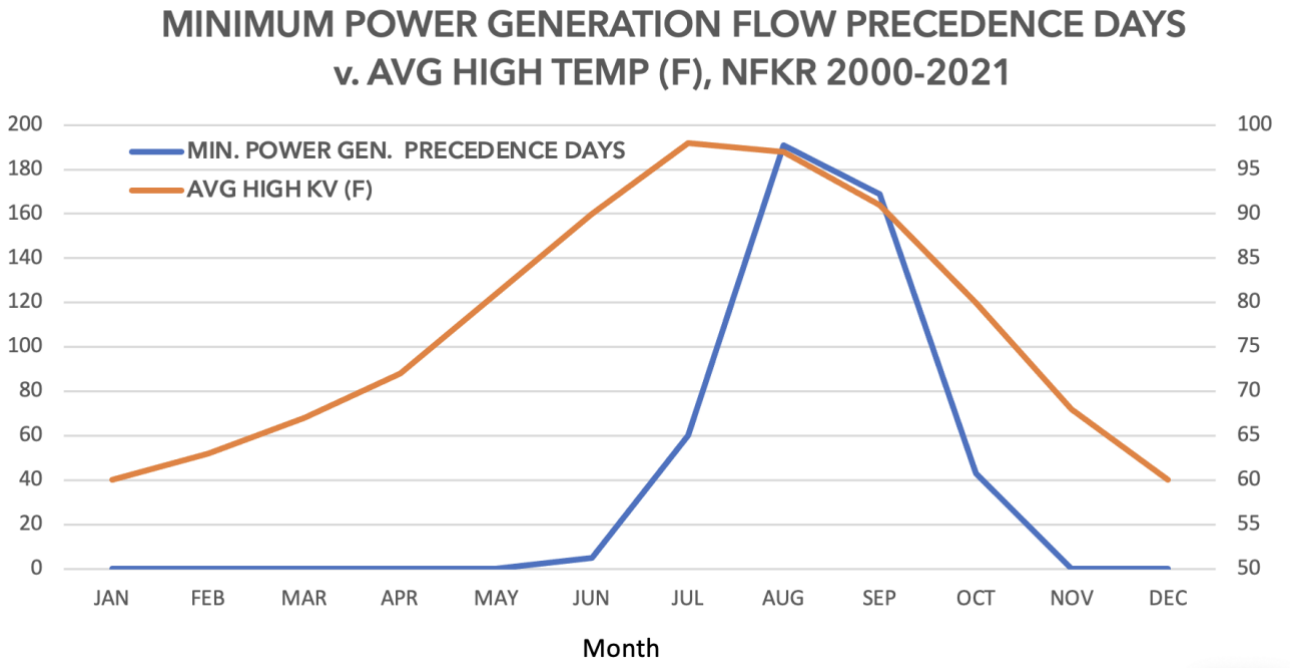
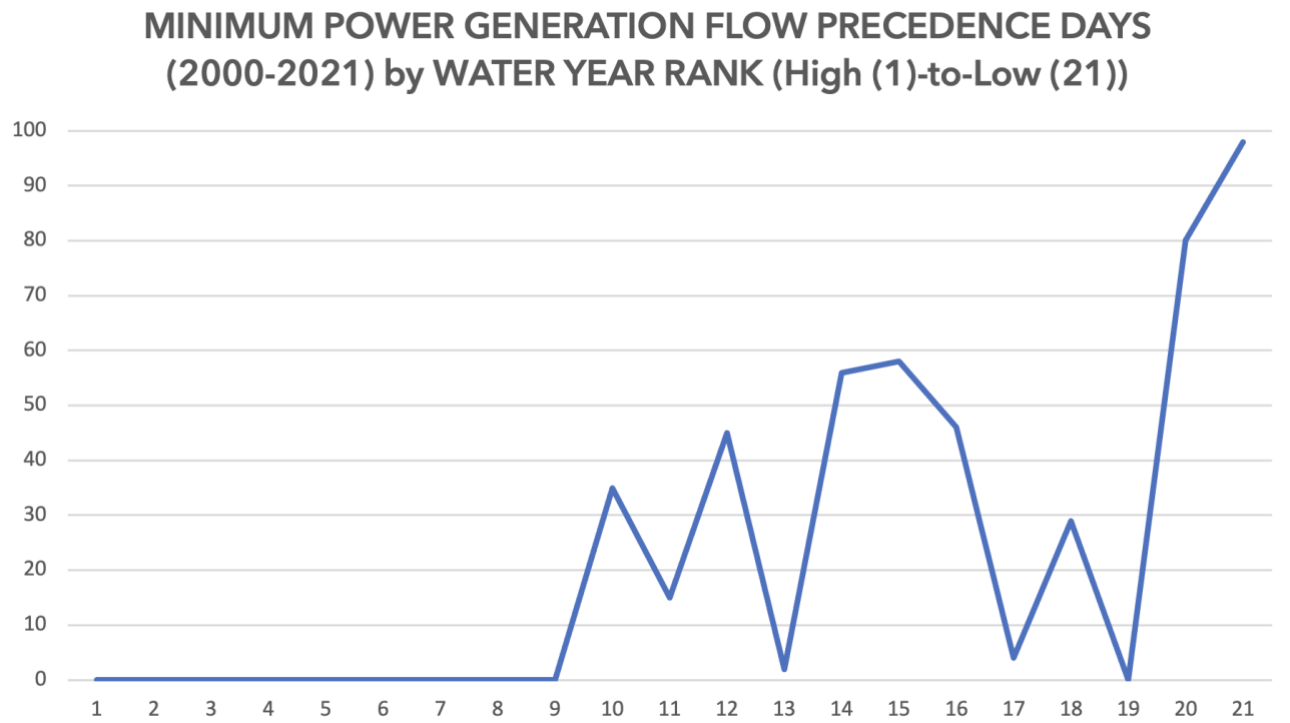
[78] FERC eLibrary 19880803-0308 at 5
[79] 1996 EA at 34; see also 1996 EA at 58
[80] PAD at 4-16
[81] KRB SD1 at 5-6
[82] See FERC Docket No. P-2290-120
[83] KRB SD1 at 9 & 88
[84] Spreadsheet available: https://www.kernriverboaters.com/s/MPG_FLOW_PRECEDENCE_NFKR_EFFECT_WY01-WY21.xlsx





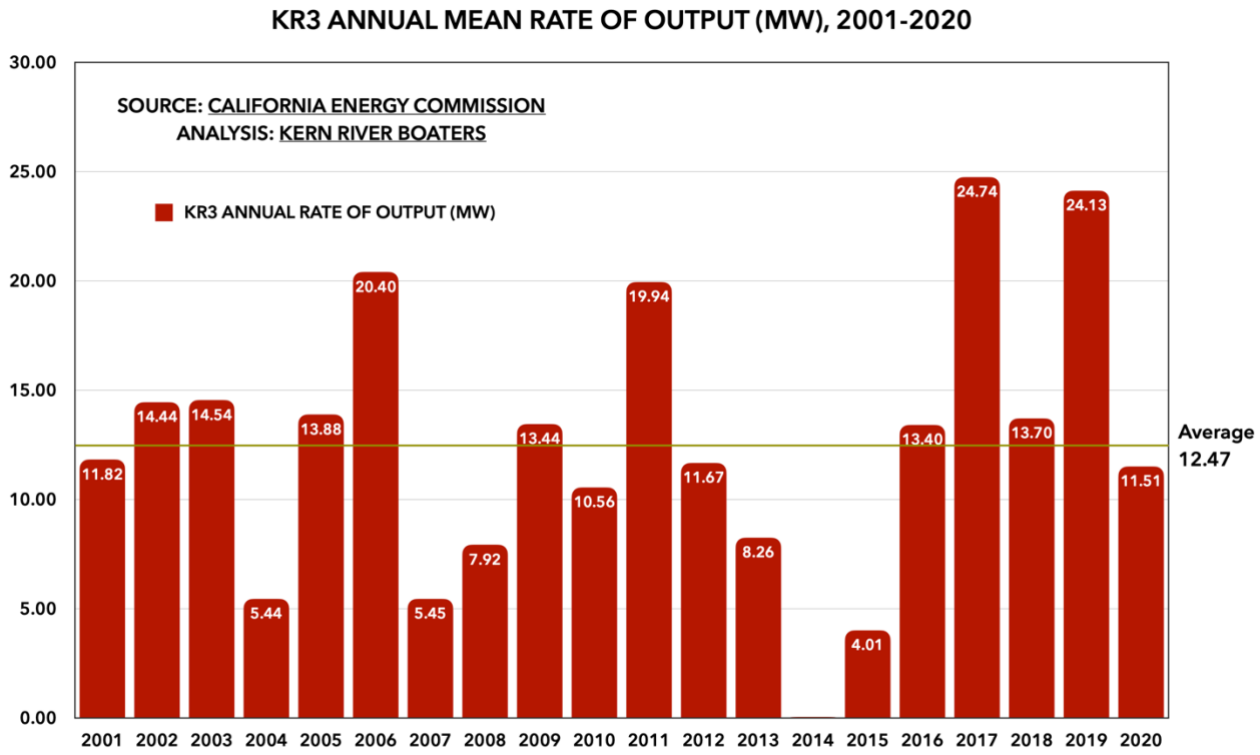
The direct correlation between the number of days when the precedence of the minimum power generation flow (40-45 cfs) cut into the MIF and the dryness of the water year is confirmed by accounting for the large number of days when the project was completely offline (and thus there was neither a diversion nor an MPG flow) in water years ranked 13, 17, 18 & 19:

YEAR	MPG DAYS	WY RANK	DAYS KR3 OFFLINE
2017	0	1	0
2011	0	2	19
2019	0	3	0
2006	0	4	9
2005	0	5	88
2010	0	6	104
2003	0	7	1
2008	0	8	69
2009	0	9	122
2004	35	10	34
2018	15	11	15
2016	45	12	37
2012	2	13	126
2001	56	14	0
2002	58	15	0
2020	46	16	0
2007	4	17	225
2013	29	18	50
2014	0	19	350
2021	80	20	51
2015	98	21	10

FERC: *The powerhouse is operated as a baseload facility. Baseload facilities are those power plants that generate dependable power consistently to meet demand*. (SD2 at 25 & fn. 12.)
KRB: Like the characterization of the first-in-line diversion of 40-45 cfs at Fairview Dam as a "hatchery" flow, the "dependable power" and "baseload" characterizations of project operations are inaccurate and misleading. The archetypical "baseload" generator is nuclear, which essentially provides a constant rate-of-output 24/7/365.25. This project is nothing like that. Rather, it is a variable energy resource ("VER"). Edison has gone on-record to "support the CAISO's proposal to treat run of river resources like VERs . . . ."[85] VERs by definition have a variability in output that is due to the variability in their fuel source and cannot be controlled by the operator. Edison has conceded that run-of-river hydro generators "cannot influence their output."[86] Sister IOU Pacific Gas & Electric has argued that "run-of-river hydroelectric resources [receive] the same RAAIM [resource adequacy] exemption accorded to other categories of variable energy resources."[87] Run-of-river hydro "operate[s] similarly to wind and solar in that there is no storage capability, and, thus, no ability to optimally choose when to generate. As a result, . . . these hydro resources face similar challenges . . . as wind and solar resources."[88] CAISO has acknowledged the same

[85] https://www.caiso.com/InitiativeDocuments/SCEProposal-CommitmentCostEnhancementsTariffClarifications.pdf at 1
[86] *Ibid*.
[87] 167 FERC ¶ 61,001 at 8
[88] *Ibid*.

point: "Run-of-river hydro resources are similar in nature to variable energy resources. Variable energy resources, such as wind and solar resources, are also generally considered price takers, in that when the wind is blowing or the sun is shining they produce energy and sell it in the market."[89] This project offers variable and uncontrollable — not baseline or dependable — output. Look at the record as depicted on the title page of this document[90]: KR3 is typically either offline for repairs or generating at a very small fraction of its capacity in late summer and early fall. Just when this state's energy demands are at their highest, river flows and this project's output tends to be near or at their lowest. The median rates of production at this project for August and September over the last 20 years are 1.2 MW and 0.1 MW, respectively.[91] That is precisely when energy is most valued in this state and the potential for load shedding is at its greatest. By contrast, KR3's highest rates of production occur in April and May — when demand is low, wind and solar are in full bloom, and negative pricing and solar and wind curtailments are most likely to occur. KR3 also demonstrates obvious annual variability in output due to (very) wide variations in precipitation and snowpack, and demonstrates wide intra-daily fluctuations based on the diurnal during the runoff.



[89] http://www.caiso.com/InitiativeDocuments/DraftFinalProposal-CommitmentCostEnhancementsTariffClarifications.pdf at 13

[90] See *ante* at 1 [cover page]

[91] https://ww2.energy.ca.gov/almanac/renewables_data/hydro/index_cms.php

SD2's characterization of the project as a dependable, baseline generator is accordingly inaccurate, and casts the project in a better light than substantial evidence allows. KRB brought these points to the Commission prior to the issuance of SD2.[92] We accordingly ask the Commission to issue a new scoping document that accurately characterizes the project as a VER — which is the characterization Edison pleaded from CAISO — and not as a dependable baseline generator.

3.2.2 Proposed Environmental Measures

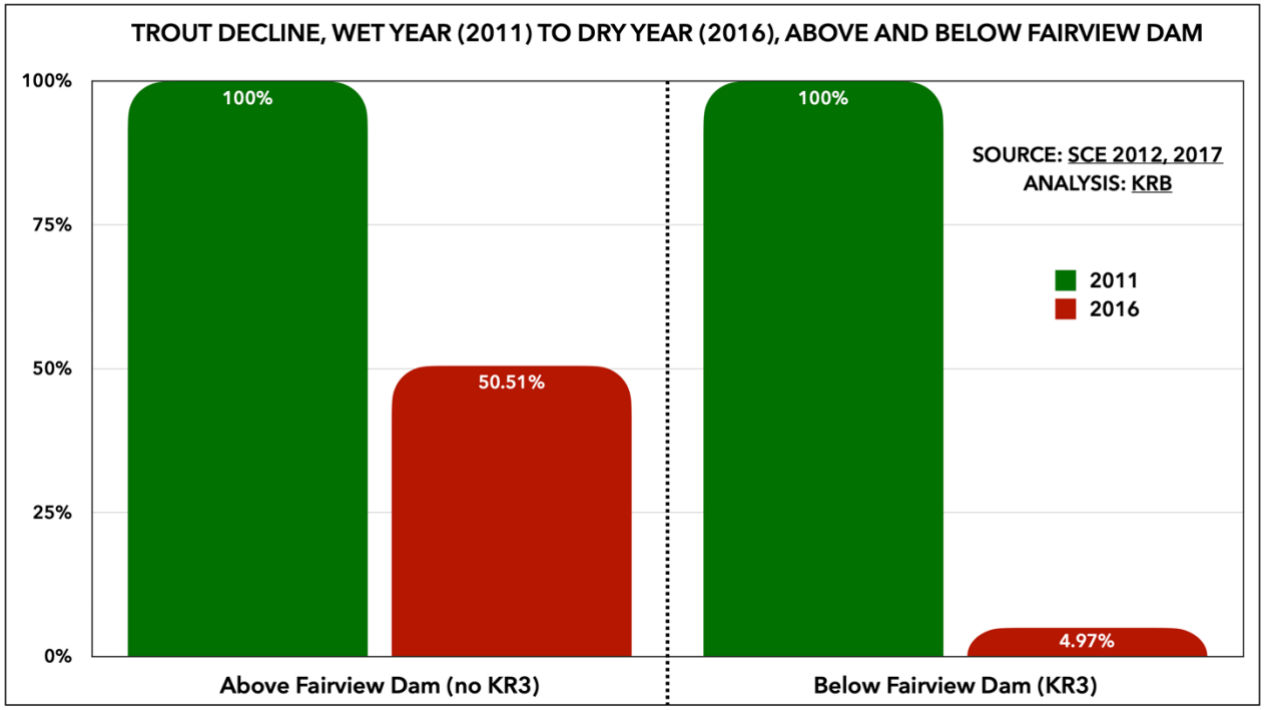
FERC: *SCE does not currently propose any new environmental measures.* (SD2 at 25.)
KRB: Is the Commission aware of how infrequently an applicant proposes nothing new whatsoever? A search of the FERC eLibrary for issuances with the phrase "does not currently propose any new environmental measures" reveals only one docket other than KR3's: Rush Creek P-1389 — also an Edison-owned project. By contrast, the phrase "As the Commission has previously held, decommissioning is not a reasonable alternative to relicensing" delivers 130 issuances.

There are obvious environmental deficiencies with the project as presently operated: repeated water quality violations[93] and dying fish below the diversion[94] are just two of the low-hanging fruit:

DATE	TEMP ABOVE	TEMP BELOW	D.O. ABOVE	D.O. BELOW	COND ABOVE	COND BELOW	FLOW ABOVE	FLOW BELOW
7/3/2021	20.0	23.7	7.4	6.4	83	254	144	102
7/17/2021	19.3	23.3	7.0	6.2	157	194	126	86
8/7/2021	18.7	22.9	7.7	6.8	166	199	113	71
WQS	<20.0	<20.0	>8.0	>8.0	<200	<200		

(ABOVE=Above Fairview Dam, BELOW=Below Fairview Dam, TEMP=Temperature (C), D.O.=Dissolved Oxygen (mg/L), COND=Conductivity (μS/cm), FLOW=Average Daily Flow (cfs), WQS=State Water Quality Standard)

[92] KRB SD1 at 18-22; KRB Allen Response at 3-4
[93] Adventure Scientists, with USFS, NPS & USFWS, "Wild & Scenic Rivers Water Quality" at https://experience.arcgis.com/experience/981d82b6126743dc8b053ea67aa2497d
[94] PAD at 5-63



The Drought Killed about Half the Fish; Fairview Dam Killed (Almost) All the Rest

Nevertheless, Edison proposes nothing new environmentally for the next 40 years. A reasonable person would infer from this unusual fact that Edison is trying to hold the line against additional environmental mitigation because the project is not financially viable enough to carry the burden of modern, scientifically defensible environmental (and social) hydrological license conditions. Edison manager Martin Ostendorf admitted as much to American Whitewater at the outset of these proceedings, and Edison's allies have been spreading the same message around the community to tamp down demands for hydrological mitigation.[95] We urge the Commission to apply this commonsense scrutiny to Edison's claims in this proceeding, starting with a new scoping document that includes the study of a no-project alternative to fully capture project effects.

3.3 DAM SAFETY

FERC: *[D]am safety constraints may exist and should be taken into consideration in the development of proposals and alternatives considered in the pending proceeding.* (SD2 at 25-26.)

KRB: Stakeholders have brought forth serious concerns about the threat this project poses to life and property.[96] SD2 fails to account for those concerns. If dam safety is an ongoing

[95] December 01, 2021 American Whitewater meeting (recorded); see also KRB SD1 at 88-90 & FERC eLibrary No. 20220103-4000 (PM) at 15-16

[96] KRB SD1 at 83, 102-106; KRB Allen Response at 6-7; FERC eLibrary Nos. 20220118-5001, 20220120-5099 & 20220103-4000 (AM) at 43-45; see also https://vimeo.com/kernriver/siphon

process, then this proceeding should be an opportunity to reevaluate the hazard status of this project as a result of information submitted by stakeholders. We accordingly urge the Commission to issue a new scoping document that includes study of the project's safety rating and to direct Edison to implement our project safety study.

3.4 ALTERNATIVES TO THE PROPOSED ACTION

FERC: *Commission staff will consider and assess all alternative recommendations for operational or facility modifications, as well as protection, mitigation, and enhancement measures identified by the Commission, agencies, Indian tribes, NGOs, and the public.* (SD2 at 26.)

KRB: We have asked[97] and continue to ask that a no-project alternative be studied based on facts known about project effects and the plain desire of more than two-thirds of commenters — including highly educated leaders in science and industry, as well as local businesses, NGOs that represent thousands, and the Kernville Chamber of Commerce — to put an end this project's diversion of water out of the North Fork Kern.[98] For those reasons, we ask that the Commission issue a new scoping document that includes a no-project alternative for analysis.

3.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

FERC: *At present, we propose to eliminate [federal takeover, non-power license and decommissioning] from a detailed study in the NEPA document.* (SD2 at 26.)

KRB: We object to this decision as premature for the reasons explained and references in our response to § 3.4 directly above.

4.1 RESOURCE ISSUES

FERC: *Per CEQ's final rule (July 16, 2020), Commission staff will consider and evaluate effects that are reasonably foreseeable and have a reasonably close causal relationship (proximate cause) to the proposed action***.** (SD2 at 28, fn. 17.)

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[97] KRB SD1 at 90; KRB Allen Response at 1-6; FERC eLibrary No. 20220103-4000 (PM) at 15-16

[98] See FERC eLibrary Nos. 20220118-5095, 20220118-5126, 20220119-5000, 20220119-5041, 20220119-5101, 20220119-5180, 20220120-5030, 20220120-5035, 20220120-5087, 20220120-5089, 20220120-5104, 20220120-5130, 20220120-5131, 20220120-5141, 20220121-5004, 20220121-5006, 20220121-5024, 20211221-5001, 20220120-5002, 20220119-5001, 20220119-5018, 20220120-5004, 20220120-5010, 20220120-5011, 20220120-5020, 20220120-5036, 20220120-5070, 20220120-5079, 20220120-5099, 20220120-5138, 20220120-5168, 20220121-5000, 20220121-5001, 20220121-5003, 20220120-5005, 20220120-5119 at 3-4 & 2022013-4000 (PM) at 14, 17, 19 & 26

KRB: Again, Executive Order 13990[99] was issued well before SD2, on President Biden's first day in office, directing the Commission and CEQ to "to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last 4 years . . . ." That direction includes review of the 2020 rule that eliminated the consideration of "cumulative impacts" under NEPA.[100] CEQ has implemented EO 13990, effective May 20, 2022.[101] We request that the Commission issue a new scoping document reflecting the inclusion of cumulative impacts in the NEPA document for this proceeding.

4.1.4 Terrestrial Resources

FERC: *Effects of continued project operation and maintenance activities including . . . herbicide use on native vegetation and special-status plant species [and] special-status wildlife species.* (SD2 at 29-30.)

KRB: KRB questioned[102] the impact of spraying herbicide at the sandbox adjacent to this protected river. Do these chemicals get in the river? Do these chemicals have the potential to affect the invertebrates that form the base of the fishery's food chain, as well as the amphibians and fish which feed upon them? These questions should have informed SD2. We ask that the Commission issue a new scoping document that includes the study of the use of pesticides at the sandbox near the NFKR.

[99] https://www.govinfo.gov/content/pkg/FR-2021-01-25/pdf/2021-01765.pdf
[100] See former 40 C.F.R. 1508.7
[101] https://www.federalregister.gov/documents/2022/04/20/2022-08288/national-environmental-policy-act-implementing-regulations-revisions
[102] KRB SD1 at 11

III • COMMENTS ON EDISON'S PROPOSED STUDY PLAN

3.0 SCE RESPONSE TO FERC'S REQUEST FOR ADDITIONAL INFORMATION

3.1 Request 1

EDISON: *Gilbert Ditch is a pre-1914 water right claim . . . and diverts up to 35 cfs from the NFKR for domestic use and ranching.* (PSP at 39-40.)

KRB: According to the latest information filed with CSWRCB, Edison employee Derrick Tito designed or last calibrated the water measurement device for the Gilbert Ditch Association.[103] Further, at the time the NF Kern was designated Wild & Scenic, the Gilbert Ditch diverted just 7 cfs:

1982 NFKR W&SR FEIS[104]:

point. The Gilbert irrigation ditch diverts up to 7 cfs from the river below the Southern California Edison Company powerhouse.

1994 N&SFKR W&SR FEIS[105]:

downstream of the diversion point. The Gilbert irrigation ditch diverts up to 7 cfs from the river below the Southern California Edison Company powerhouse.

[103] https://rms.waterboards.ca.gov/StatementPrint_2020.aspx?FORM_ID=503809
[104] 1982 USFS NFKR W&SR FEIS at 18 (.pdf 29), available: https://drive.google.com/file/d/1SJCruHoRxwOniEl6UUeuWHXl3iDJ33wf
[105] 1994 USFS N&SFKR W&SR FEIS at "Affected Environment" 76 (.pdf 128), available: https://drive.google.com/file/d/1-spMefl-icUJmvY450dKy7jZvkKQ7Ozs

WR-1 WATER QUALITY

1.0 POTENTIAL RESOURCE ISSUE

Edison: *[Project] operations have the potential to alter water temperatures and dissolved oxygen (DO) concentrations, which may affect suitable habitat for fish and other aquatic species.* (PSP WR-1 at 1.)

KRB: In the PAD, Edison concedes that "[t]he causes of reduced . . . DO concentrations were . . . likely due to [grazing] and abnormally high water temperatures during sampling."[106] Edison has also conceded that quantity of flow below Fairview Dam affects water temperature.[107] Project operations accordingly do not just "have the potential" to alter water temperatures and D.O. concentrations; project operations do alter those parameters. As USFS, NPS & CDFW concluded in the Upper Kern Basin Fisheries Management Plan, "The water diversion that has the greatest impact on the trout fishery occurs in [the project's dewatered reach]. Water is diverted by Southern California Edison Company at Fairview Dam for hydroelectric power generation at Kern River Number 3 Powerhouse. There is potential for improving habitat for trout during low flow periods by reducing water temperatures by increasing flow releases from Fairview Dam. The various agencies and the public should work through the relicensing process, or other methods if practical, to obtain these water allocations during this critical low flow period."[108]

2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

EDISON: *Additional data are needed to characterize water temperature and DO in the Project Area. Results will be used to assess Project-related effects on aquatic habitat and determine when the Regional Water Quality Control Board (RWQCB) water quality objectives related to stream temperatures and DO concentrations are met.* (PSP WR-1 at 1.)

KRB: Edison fails to explain why only these two water quality parameters are to be tested. The project may reasonably be expected to effect pH, conductivity, turbidity, and other relevant parameters. We request that this very limited proposed study be expanded to include these parameters.

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[106] PAD at 5-45

[107] PAD at 5-43 & 5-44

[108] 1995 USFS NPS CDFW UKBFMP at V-3, available: https://drive.google.com/file/d/10UGxbYFWArx5FZbV8JNM34PObFgfu8r-

3.0 STUDY GOALS AND OBJECTIVES

EDISON: *Collect current stream water temperature [and DO monitoring] data to characterize current water temperatures [and DO concentrations] during summer months.* (PSP WR-1 at 1.)

KRB: Project operations remove significant quantities of water from the NFKR year-round. Edison does not provide a rationale for limiting testing to summer months. We request that this very limited study be expanded to include testing for one full year. We also request that sampling be conducted over two summer seasons, since a single summer may experience atypical environmental conditions (dry year *v*. wet year, low water *v*. high water, cold water *v.* warm water).

EDISON: *Collect current fecal coliform data to characterize bacterial concentrations.* (PSP WR-1 at 1.)

KRB: Although Edison proposes to study bacterial concentrations, it does not concede in the study plan that project operations may affect those concentrations. Edison accordingly offers no project nexus for the study of bacteria. Although unstated by Edison, a nexus exists: In 1995, USFS, NPS, and CDFW concluded there was an "environmental concern" about coliform bacteria levels in the dewatered reach.[109] CSWRCB has stated that "increased fecal coliform levels and potential solutions to the problem were flow-related."[110] USFS has noted that "[h]igh coliform bacteria counts may be responsible for instances of low DO" in the dewatered reach.[111] The 1996 EA concluded, "Flows in the bypassed reach can influence bacteria counts through dilution."[112] Edison's 2021 PAD concedes that project operations "may influence coliform counts."[113] We request that this limited study plan be reformulated to include an adequate statement of nexus for the testing of bacteria.

4.0 STUDY AREA AND STUDY SITES

4.1. TEMPERATURE AND DISSOLVED OXYGEN MONITORING SITES

EDISON: 2. WQ-NFKR-18.5: NFKR immediately downstream of Fairview Dam. (PSP WR-1 at 1.)

KRB: As Adam Cohen stated in the March 22, 2022 PSP meeting, this proposed site is so close to the diversion that it does not provide meaningful information on the impact of the project on the dewatered fishery. Given there are so few monitoring sites planned in this limited water quality proposal, we ask that either (a) this site be moved further

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[109] 1995 USFS NPS CDFW UKBFMP at V-3

[110] 1996 EA at 26

[111] 1998 USFS NOD FONSI at Appendix E, 13, available: https://drive.google.com/file/d/16SJJ4D86u9UTkAh1jmYd9Da-RBmg1KG3

[112] 1996 EA at 26

[113] PAD at 5-39

downstream or (b) an additional site be included downstream, preferably to a site between the 1998-2002 monitoring site (6 km below Fairview Dam) and Goldledge campground.

EDISON: *4. WQ-NFKR-3.2: NFKR immediately upstream of the KR3 Powerhouse.* (PSP WR-1 at 1.)
KRB: We ask that the proposed site be placed upstream of the project's emergency spillway so that spillway operation, if needed, does not confound the study's results, which are attempting to capture project effects that would be lost by the inclusion of diverted water from the spillway.

4.2. FECAL COLIFORM SAMPLING SITES
EDISON: *4. WQ-NFKR-3.2: NFKR immediately upstream of the KR3 Powerhouse.* (PSP WR-1 at 2.)
KRB: We ask that the proposed site be placed upstream of the project's emergency spillway so that spillway operation, if needed, does not confound the study's results, which are attempting to capture project effects that would be lost by the inclusion of diverted water from the spillway.

EDISON: [*null*]. (PSP WR-1 at 2.)
KRB: The proposed bacterial sampling sites are located just above and at the end of the dewatered reach. We ask that a third coliform sampling site be included at Goldledge campground or some other convenient, representative site in the middle of the dewatered reach to greater contextualize and validate data captured at the two far ends of the reach.

5.0 EXISTING INFORMATION:
EDISON: *[null]*. (PSP WR-1 at 4.)
KRB: Edison fails to note recent[114] summer water quality sampling above and below Fairview Dam:

DATE	TEMP	TEMP	D.O.	D.O.	COND	COND	FLOW	FLOW
	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW
7/3/2021	20.0	23.7	7.4	6.4	83	254	144	102
7/17/2021	19.3	23.3	7.0	6.2	157	194	126	86
8/7/2021	18.7	22.9	7.7	6.8	166	199	113	71
WQS	<20.0	<20.0	>8.0	>8.0	<200	<200		

[114] Adventure Scientists, with USFS, NPS & USFWS, "Wild & Scenic Rivers Water Quality" at https://experience.arcgis.com/experience/981d82b6126743dc8b053ea67aa2497d

(ABOVE=Above Fairview Dam, BELOW=Below Fairview Dam, TEMP=Temperature (C), D.O.=Dissolved Oxygen (mg/L), COND=Conductivity (μS/cm), FLOW=Average Daily Flow (cfs), WQS=State Water Quality Standard)

6.0 STUDY APPROACH

EDISON: *Data loggers will be deployed between June 1 and September 30, assuming safe access to the stream channel.* (PSP WR-1 at 4.)

KRB: Edison does not appear to have described existing information about water quality in the dewatered reach outside the warm season in either its PAD or the PSP. Given that data gap, we ask that the relevant parameters be monitored year-round. Project effects do not begin in June or end in September. Further, since water quality parameters are inherently sensitive to river conditions, and since any single sampling year may experience atypical environmental conditions (dry year *v*. wet year, low water *v*. high water, cold water *v*. warm water), we ask that sampling be accomplished in at least two different years in an attempt to establish reasonable contingent baseline conditions in the dewatered reach (with an option for cancellation if the water outlook is substantially similar to that studied in the first year).

EDISON: *Coordinates of each logger after installation will be recorded using a Global Positioning System (GPS) unit.* (PSP WR-1 at 4.)

KRB: At the March 22, 2022 PSP meeting, Edison consultant Adam Cohen acknowledged that the logger upstream of Fairview Dam would be placed upstream of the influence (*e.g.*, thermal) of the impoundment caused by that dam. This study aims to acquire data representative of natural flows above Fairview Dam and impaired flows below. It is critical that flows above Fairview Dam not be influenced by the impoundment; otherwise, they would not represent the natural state of incoming water prior to project effects. We ask that GPS coordinates for all monitoring devices be revealed for public review to confirm adequate separation from impoundment effects and other potentially confounding placements — after data monitoring is complete and the loggers are removed, of course.

EDISON: *Data loggers will be placed in locations with sufficient circulation, yet also protected from high scouring flows.* (PSP WR-1) at 5.0

KRB: We ask that data loggers be positioned to ensure no unrepresentative project influence — *i.e.*, above the powerhouse emergency spillway to avoid measurement of spillway water and far enough above the impoundment at Fairview Dam to ensure no impoundment effects.

7.0 REPORTING

EDISON: *[null].* (PSP WR-1 at 4.)

KRB: We ask that all raw data obtained from this study be reported to the public in a hosted electronic spreadsheet format. Hourly flow data should accompany the reporting to show the delta between the natural flow and the impaired flow to allow stakeholders to further refine their understanding of project effects.

WR-2 HYDROLOGY

4.0 STUDY AREA AND STUDY SITES

EDISON: *The study will compile data from:*

- *Southern California Edison (SCE) Company Gage 401 (U.S. Geological Survey [USGS] gage 11186000) in the North Fork Kern River (NKFR) downstream from Fairview Dam.*
- *SCE Gage 402 (USGS gage 11185500) in the conveyance flowline at Adit 6/7.*
- *U.S. Army Corps of Engineers (USACE) gage in Kernville.* (PSP WR-2 at 1.)

KRB: The project's "influence on stream hydrology" (PSP WR-2 at 1) does not start and end with the NFKR; it includes hydrological influence on Salmon and Corral creeks as well, *as indicated by their inclusion in Edison's PSP WR-1*. This study should similarly include project effects on the creeks by providing all flow data available from the project's diversions at Salmon and Corral creeks to "inform evaluations of potential project-related effects on streamflow and hydrology" (PSP WSR-2 at 1) on those creeks by agencies and stakeholders.

5.0 EXISTING INFORMATION

EDISON: *This [USACE] data is subject to USACE oversight and to a different standard than the USGS gages upstream.* (WR-2 at 1.)

KRB: Announcing that the data are subject to different standards without identifying those differences does nothing to promote public understanding or inform the study process. We request that Edison identify the purported differences in an updated study plan.

6.0 STUDY APPROACH

EDISON: *Hourly gage data will be compiled from SCE, USGS, and/or USACE for the duration of the current license period (i.e., water year 1997, beginning October 1, 1996, through water year 2021, ending September 30, 2021)*. (WR-2 at 1.)

KRB: Edison proposes to report out in August 2023. (PSP WR-2 at 2.) There is no reason Edison cannot include water year 2022 in that report — that data is fresh, should not be "on floppy disk, or on paper," and will have been complied and provided to USGS many months before that date. We request that water year 2022 be included in this study.

7.0 REPORTING

EDISON: *SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the*

Technical Memo will be summarized in, and appended to, the Application for New License. (PSP WR-2 at 2.)

KRB: The fundamental operation of this project is to remove water from the NFKR and two of its tributaries. Edison is obligated under its current license to monitor this operation and provide the data it obtains in that process to the public in real time and to USGS annually.[115] A reasonable hydro company should be aware that flow data is an essential element of the hydroproject relicensing process and should be both ready and willing to share that data with the public when announcing its intent to seek a new license. Yet Edison acts like this data can only be provided to managing agencies and stakeholders with a level of cost and exertion associated with an archaeological dig. Further, Edison does not plainly commit to sharing the underlying hourly flow data with the public in its proposed study. We request that Edison subject the hourly flow data it possesses in the POR for the NFKR and the data it possesses on creek flows to its quality assurance process and provide it to the public in an electric spreadsheet format available on the internet by the end of this year (December 31, 2022).[116] Edison remains free to analyze that data as it wishes; stakeholders and managing agencies should be free to do the same in developing their full understanding of project effects at least in the middle of this process — not towards the end of it.

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[115] See PAD at 4-14 & 5-22

[116] At the April 29, 2021 TWG meeting, SCE manager David Moore promised attending managing agents and stakeholders who had been asking for the historical record of hourly flows at both gauges for half a year that Edison was compiling hourly data and would provide it in the spring of 2022. At the March 22, 2022 PSP meeting, Moore acknowledged his promise but averred the company had changed its mind because "a complaint had been filed" against Edison by Kern River Boaters (and supported by the Kern River Fly Fishers Council) for (1) failing to meet the 40 cfs MIF in December 2020 and (2) appropriating the 5-10 cfs "buffer" for its minimum generation flow without license amendment or environmental review. (See FERC Docket No. P-2290-120.) Edison's position is that the MIF is satisfied by reference to the *average daily flow* below Fairview Dam — *i.e.*, the MIF is not an ongoing, continuous requirement. KRB is committed to fighting for the continuous nature of the MIF for the health of the dewatered reach. Regardless, Moore's promise was made on behalf of Edison to all stakeholders and managing agencies attending the April 29, 2021 TWG — not just to KRB — and the company's pique at KRB for simply attempting to get the Commission to enforce the current license does not justify breaking that promise. This bedrock, fundamental information about the history of project operations should have accompanied Edison's PAD; it should not be held in abeyance past the end of this year, already an unreasonably late date.

8.0 SCHEDULE

EDISON: *Summer 2022: Compile gage data from USGS/SCE for the established period of record; Review and analyze data for integrity, consistency, and data gaps. August 2023: Provide Hydrologic Gage Data and Technical Memo with ISR.* (PSP WR-2 at 2.)

KRB: As indicated above, we request that Edison subject NFKR hourly flow data and creek flow data for water years 1997-2022 to its QAP and provide it to the public in an electric spreadsheet format available on the internet by December 31, 2022.

9.0 LEVEL OF EFFORT AND COST

EDISON: *The estimated cost (2022 dollars) for this study is $50,000, which includes data compilation and analysis, and reporting.*

KRB: This is data Edison is (1) obligated to obtain under the terms of its license, (2) provides to USGS for public reporting, and (3) understands is necessary to capture project effects in a relicensing proceeding. Edison's estimated cost for this study is more than that of its proposed limited water quality study. (Compare PSP WR-1 at 6 [$42,000] with PSP WR-2 at 2 [$50,000].) This study involves desktop validation of logged data that has already been submitted to USGS for two gauges, and acquisition of publicly available data from the third gauge. The estimated cost, in our opinion, seems inflated, and should not be appreciably increased by our proposal for the inclusion, validation, and distribution of creek data and hourly NFKR data for water year 2022 — again, this is data that Edison is required to obtain and hold and that is fundamental to a relicensing proceeding. We ask that the Commission direct Edison provide the flow data for all project operations during the current license term by the end of this year.

6.0 STUDY APPROACH

EDISON: *CONDUCT FIELD SURVEYS*

KRB: Edison states the goal of this study is to "Determine whether any life stage of the foothill yellow-legged frog is present within the study area." (BIO-1 at § 3.0.) This goal can be assisted with crowdsourcing at low cost with potentially determinative benefits. As our references below show[117], crowdsourcing has been used to elicit data over areas too voluminous or timespans too wide for one study team to reasonably be expected to acquire. That makes it one of the best available scientific tools for species identification. In this case, the study team is tasked with one extremely limited field survey (one) at as few as six sites. (BIO-1 at §§ 4.0 & 6.2.2.) The public can be enlisted to assist the field team's work with Edison's provision of an information sheet on (1) how to identify the species, (2) how to document a suspected observation of the species (including direction not to disrupt it), and (3) how to report the observation. We do not ask that eDNA or habitat suitability information be divulged in this effort; rather, the effort would simply be educational on identification, documentation, and reporting of suspected encounters for the numerous persons who hike and enjoy the forest in the project-affected area. We accordingly request that Edison's biologists develop a short but salient information sheet on how to identify, document, and report this species if come across in the project area — including direction not to disturb potential candidates — and host that sheet on a website that can be directly linked to and promulgated by managing agencies and conservation organizations.

[117] See Jennifer Morales, "Crowdsourcing conservation: How volunteers can advance federal conservation goals" (Medium.com, April 21, 2021). Available at: https://medium.com/cgo-benchmark/crowdsourcing-conservation-c17c54b3555e
See also: CDFW, "Saving Species Together" https://wildlife.ca.gov/Saving-Species-Together#55656856-about-the-campaign

BIO-2 WESTERN POND TURTLE AND SPECIAL-STATUS SALAMANDERS

6.0 STUDY APPROACH

EDISON: *FIELD SURVEYS*

KRB: The stated goal of this study is to "*Obtain additional information to supplement the existing information regarding western pond turtles, Fairview slender salamander, and other potential special-status salamanders potentially in the study area . . . .*" (BIO-2 at § 3.0.) If, under that rubric, a goal of this study is to search for evidence that these special-status species exist in the project affected area, that goal could be assisted with crowdsourcing at a low cost-to-potential-benefit quotient. (See *ante*, at BIO-1 FOOTHILL YELLOW-LEGGED FROG.) We accordingly request that the Commission direct Edison's biologists develop a short but salient information sheet on how to identify, document, and report these species if come across in the project area — including direction not to disturb potential candidates — and host that sheet on a website that can be directly linked to and promulgated by managing agencies and conservation organizations.

REC-2 RECREATION FACILITIES USE ASSESSMENT

3.0 STUDY GOALS AND OBJECTIVES

EDISON: *The Recreation Facilities Use Assessment (Study) would characterize visitor use along the NFKR at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach.*

KRB: We ask that Edison specify how it intends this study to "characterize" visitor use; as it stands, the term "characterize" is too vague to justify the study.

4.0 STUDY AREA AND STUDY SITES

EDISON: *The study area and specific study sites will be focused on developed campgrounds, day-use areas, and river access points within the FERC Project Boundary and along the Fairview Dam Bypass Reach.*

KRB: Edison does not explain why it excludes undeveloped campgrounds within this study but includes them in its proposed study on facility conditions (REC-3). This inconsistency needs to be resolved. Visitors to undeveloped campgrounds are equally affected by project operations (as Edison states in § 1.0 of the proposal: "specifically changes in instream flows") as are those who visit developed campgrounds and day use areas. Moreover, visitors to undeveloped campgrounds, which are free of charge, are more likely to be from economic and environmental justice communities, and the Commission has been directed specifically to consider project effects on them.[118] We accordingly request that this study be amended to include undeveloped campgrounds.

6.1. VISITOR INTERCEPT SURVEY

EDISON: *During the 2023 recreation season, visitor intercept surveys will be conducted at the sites identified in Section 4.0 to collect data and information regarding recreation user information. Survey sample design will follow applicable protocols for sample size, weekdays/weekends, start/end times, and sample locations.*

KRB: Edison does not define the "recreation season" in the project-affected area. The project takes water out of the river year-round, and the project-affected area is a treasured public resource year-round. We accordingly ask that the study encompass an entire calendar year. Edison also fails to identify the governing "protocols," and we request that they be identified prior to study approval.

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[118] Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 1994, 59 FR 7629; see also Executive order 14008, 86 FR 7619 at § 219 [directing FERC to develop "programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts"]

REC-3 RECREATION FACILITIES ASSESSMENT

2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

EDISON: *During the previous relicensing process, SCE developed a Recreation Plan (SCE, 1997) in accordance with the FERC license (License Article 421), which outlined specific one-time capital improvements SCE would undertake to improve or enhance three USFS owned recreation sites along the Fairview Dam Bypass Reach: Fairview Campground, Thunderbird Group Campground and whitewater put-in/take out, and Hospital Flat Campground.*

KRB: Edison fails to describe a project nexus between project operations and the *condition* of USFS-owned recreation sites outside the project boundary. Simply because USFS accepted money from SCE for forest improvements in lieu of hydrological mitigation for project effects during the last proceeding does not render such an appropriate issue for study in the present proceeding, which is governed by the more structured ILP rubric requiring a plausible project nexus between project operations and proposed studies. As FERC states in its ILP Guide, "A study request should demonstrate that there is a potential project effect associated with the resource, explain why a specific aspect of project construction or operation is a likely or probable source of the effect, and explain how the information that would be obtained may be used to define alternatives to address the effect."[119] We request that this study request be rejected for all but the two project-owned sites for lack of a plausible, identified nexus.

[119] FERC ILP Study Guide (2012) at 8

SOCIO-1 SOCIOECONOMIC ANALYSIS

9.0 POTENTIAL RESOURCE ISSUE

EDISON: *Contribution of the Kern River No. 3 (KR3) Project Area recreation and tourism to the local economy.*

KRB: Edison proposes to describe the project-affected area's contribution to the local economy. It does not seek to evaluate the project's *effect* on that contribution. The fundamental operation of this project is to remove water from the NFKR. The effect of this operation obviously depresses human economic and experiential enjoyment of the dewatered reach by damaging river aesthetics, fish habitat, the riverine ecosystem, opportunities for recreation, water quality, and the like. The study process is supposed to identify and evaluate such direct project effects[120]; instead, Edison proposes to describe the economic state of affairs as-is. We ask that the study be amended to include an evaluation of the project's economic impact on recreation and tourism in the dewatered reach.

2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

EDISON: *This study will analyze the economic benefits to the surrounding community of the current river-related recreation in the Fairview Dam Bypass Reach. The study will also provide context for these economic benefits by characterizing the contribution of outdoor recreation in the greater surrounding area (e.g., Isabella Lake, other reaches of the North Fork Kern River [NFKR]) to the economy of the local community. The results of this study will be used to support SCE['s] Application for New License and Federal Energy Regulatory Commission FERC[']s NEPA analysis.*

KRB: Edison is proposing to "contextualize" its descriptive study with more description: namely, of recreational dollars derived from the surrounding area — *i.e., from beyond the reach of any project effect.* There is no conceivable license condition that could be developed with this information. Edison is free to conduct a descriptive study of the economic state of affairs as they are around the project and in the greater Kern River Valley, but the Commission should not grant it the *imprimatur* of being an ILP Study of project effects. We

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[120] FERC ILP Study Guide (2012) at 1 ["Before the Commission can make an informed decision on a license application, it must obtain adequate information on the resources the project effects, such as soils, water quality, fish and wildlife, cultural, recreation, aesthetics, land use, and tribal resources. To obtain this information, it may be necessary for the applicant to conduct studies **to assess these effects** so a range of potential protection, mitigation, and enhancement measures can be explored"] & 4 ["A reasonable connection between project construction or operation and **potential effects on the resource in question is a threshold requirement** that must be demonstrated for the Commission to require that an applicant gather the requested information"]

ask that the study be modified to be evaluative of the project's negative economic effects on recreation and tourism in the dewatered reach, or be rejected.

3.0 STUDY GOALS AND OBJECTIVES

EDISON: *Quantify and qualify recreation expenditures for river-related recreation in the bypass reach from data collected in the REC-2 Recreation Facilities Use Assessment Study Plan, including contributions to the local economy resulting from tourism and recreation.*
Qualify outdoor recreation expenditures in the surrounding area outside of the bypass reach using publicly available data, such as the National Visitor Use Monitoring (NVUM) data for Sequoia National Forest (SQF).
Contextualize the contribution of the bypass reach recreation relative to the overall contribution of recreation in the area.

KRB: As per our comments above in § 2.0, we ask that the study goals be amended to (1) exclude the study of economics not affected by the project and (2) include an evaluation of the project's negative economic impact on recreation and tourism in the dewatered reach.

9.0 LEVEL OF EFFORT AND COST

EDISON: *The estimated cost (2022 dollars) for the study is $35,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.*

KRB: By eliminating the effort into describing multiple recreational areas not affected by the project, the inclusion of our request to study project economic affects on recreation and tourism in the dewatered reach should not appreciably alter the cost of this study.

OPS-1 TUNNEL ASSESSMENT

2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

EDISON: *Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages. Results from the tunnel assessment will validate the need for tunnel maintenance flows.*

KRB: Edison shifts without explanation from positing in § 1.0 that "routine cycling . . . *has the potential* to effect tunnel integrity" to asserting that such cycling affects tunnel integrity in the absence of a tunnel maintenance flows, which "are required." Edison cites no evidence to support this assertion; indeed, validating that assertion is the purported goal of the study. We ask that the assertion "*Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages"* be stricken from the proposed study.

5.0 EXISTING INFORMATION

EDISON: *The Project's water conveyance flowline includes approximately 60,270 feet of below-ground tunnels that include 24 tunnel segments that vary in length from several hundred feet to over 1 mile. The tunnel segments range in size from 8.5 feet wide by 8 feet high to 9.5 feet wide by 8 feet high. The floors and sides of the tunnel are lined with concrete, and the arched ceiling of the tunnel is lined only where rock appears to be unstable. Tunnel portal access points, or adits, are situated at various tunnel or tunnel/flume junctions along the flowline.*

KRB: Edison's recitation of the above as "existing information" merely describes in limited detail the tunnels of its conveyance. This underscores the absence of evidence that tunnel maintenance flows "are required" as asserted in § 2.0.

The current rec flow schedule limits the benefits of hydrological mitigation for recreation to a maximum of 300 (less if the tunnel is not full) of the 600 cfs Edison can divert at Fairview Dam. The rationale for this limitation was founded upon a purported "SCE study" that showed "the removal of water from the [KR3 diversion's conveyance] tunnel for whitewater boating on a regular basis will create greater and more frequent damage to the tunnel liner."[121] From the earliest stage in this proceeding, stakeholders have asked to see this study. Stakeholders — including stakeholders who have already been qualified by FERC to view CEII — continued asking to see this study throughout the TWG process. John Gangemi, who was American Whitewater's signatory to the 2002 recreation settlement and who has subsequently switched sides, could not recall ever seeing this study.[122] Current AW lead Theresa Simsiman looked for the study in AW's records and could not find it and has never seen it.[123] At the December 09, 2020 TWG meeting, David

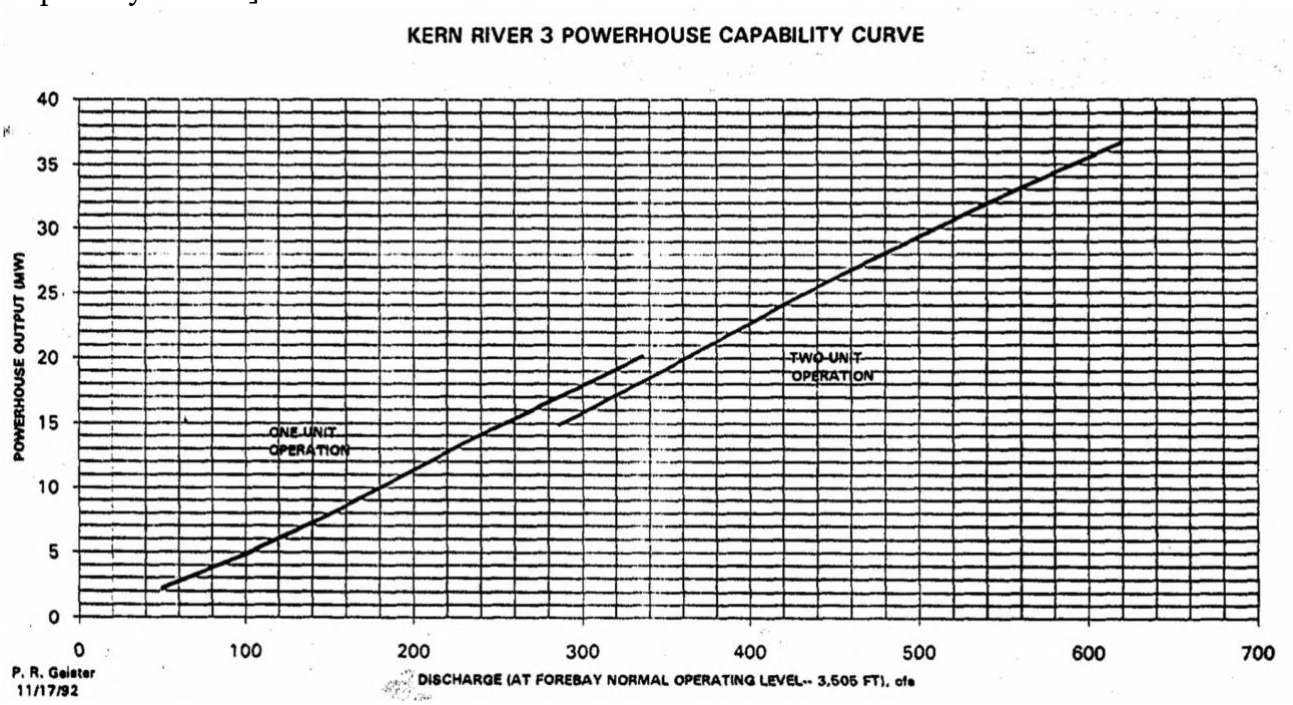
[121] 2002 Whitewater Settlement, Rationale at 2 [FERC eLibrary 20030106-0377]
[122] 09DEC2020 TWG meeting
[123] 01DEC2021 American Whitewater meeting

Moore said Edison would look for the study. At the April 29, 2021 TWG meeting, Moore said Edison could not find and did not have this study. So no person outside of Edison has ever seen this study, if it existed. And no current Edison employee has ever seen it.

The purported study's conclusion that 300 cfs is required to remain in the tunnel during rec days to prevent damage is controversial. Why is the required level for tunnel "integrity" 300 cfs instead of 250, or 200, or 150, or 100, or 50? Is the reason that 300 cfs is half of what Edison can divert, thereby strictly limiting the economic downside of mitigation? Is the reason that 300 cfs is the lowest quantity at which Edison can operate *both* of KR3's turbines?[124] Absent a scientific case for the selection *of that number, 300,* the number will continue to appear to be based on factors far afield of tunnel integrity. Indeed, Edison does not choose to limit its diversion to steady levels when the diurnal naturally results in a cycling of tunnel flows below 300 cfs; it only moves to "protect" the tunnels when mitigation comes into play. Absent the claims of recreation, Edison takes all the water it can get out of the river regardless of the diurnal's cycling effects on its tunnels and accepts those effects as a cost of doing business.

We ask that the study proposal's existing information section be amended to include these known facts, which should inform the study approach.

[124] See FERC eLibrary No. 19930127-0376 at image 30 ["Kern River 3 Powerhouse Capability Curve"]:



6.0 STUDY APPROACH

EDISON: *With support from a qualified engineer, SCE will conduct a desktop analysis summarizing current and available information on the Project tunnels as well as any readily available industry guidance on flow cycling in tunnels. The information to be collected and summarized may be obtained from:*

SCE documents including as-built drawings, descriptions of recent refurbishment work conducted on the tunnels, and any recent inspection reports.

SCE's operational practices when cycling tunnel flows during Project operations or during tunnel dewatering for routine maintenance outages.

Literature review of studies on tunnel structural integrity and long-term effects of cycling tunnel flows.

KRB: Given the facts that (1) the tunnel maintenance flow serves Edison's primary interest in the project by significantly limiting the amount of hydrological mitigation it can provide for recreation and (2) Edison has announced its desired conclusion of this study — namely, to validate the existing regime, and nothing else — it is unreasonable to expect Edison's own engineers to conduct this study without bias. The public simply cannot be confident in a result here unless an independent engineering firm conducts it; Edison's self-interest in the outcome is too great, and a clear conflict of interest exists. The Commission has conceded that in situations where a generator's interest in a certain engineering result is too great to ignore, an independent engineering evaluation is called for.[125] We ask that the Commission reject this study request absent a requirement that it be conducted by an independent engineering firm selected in conjunction with the stakeholders.

Next, the study should not simply attempt to validate the current regime. Transporting water over concrete inevitably damages the concrete, as recent pictures of the project's conveyance confirm.[126] There is thus some rate of damage to the concrete tunnel liners inherent in project operations absent any hydrologic mitigation. The relevant question for this study to answer is what additional damage attends mitigation? The study should accordingly not simply provide an up-or-down thumb on the current 300 cfs regime. It should instead report on the rates of damage under various mitigation schemes, including one that provides for full natural flows (*i.e.*, a complete cycling that empties the conveyance), one that reflects the current 300 cfs cap (*i.e.*, cycling of all but 300 cfs from the tunnels), and other levels in between (*e.g.*, the cycling of all but 50, 100, 150, 200 & 250 cfs from the tunnels).

Finally, Edison's position is that it cannot provide more than 0-300 cfs in hydrologic mitigation at any time (whatever is in the tunnel minus 300 cfs) due to the configuration of its project. The study should investigate whether there are alternate tunnel configurations

[125] See FERC eLibrary No. 20220406-3072 at 1-2

[126] See *post*, at 82 et seq. & https://vimeo.com/kernriver/siphon

(*e.g.*, different sealants, concrete formulations, or types of liner material) that would mitigate damage from mitigation cycling and what the costs of those materials would be. Edison shut the project down for 16 months in 2013-2014 to complete, among other things, a "Tunnel Rehabilitation Project."[127] One aspect of the tunnel project was to "improve the structural integrity" of the tunnels.[128] Edison does not indicate whether it chose to use superior materials for this project.[129] Given the congressional mandate to mitigate recreational losses from project operations that dates back to the mid-1980s, the study should inquire into what steps Edison took during its tunnel rehabilitation project to improve the structural integrity of the tunnels so that recreational flows of more than 0-300 cfs could be afforded the public as mitigation for project operations or, if it did not take any such steps, why not. Edison should not be allowed to avoid adequate statutory mitigation consistent with contemporary values simply because it has chosen to construct and rehabilitate its project in a manner that breaks if that mitigation is provided.

We accordingly ask that the study approaches described above be incorporated.

9.0 LEVEL OF EFFORT AND COST

EDISON: *The estimated cost (2022 dollars) for the study is $20,000, which includes study-specific consultation, data compilation and analysis, and reporting.*

KRB: Our proposal will increase the amount of analysis required to conduct this study, but it will remain a desktop study, and the associated additional cost — which we estimate at $10,000 — will ensure that the project's composition does not unreasonably constrain the potential for hydrological mitigation.

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[127] See FERC eLibrary No. 20130620-4015. Edison improperly filed its entire application for that project as CEII because, as Edison later conceded, "only certain pages contained CEII." (FERC eLibrary No. 20130806-5052 at 3.) Edison informed FERC it would "appropriately segregate the public and CEII" portions and "resubmit the Applications" for public inspection. (*Id*., at fn. 6.) KRB does not see any such resubmission in the FERC eLibrary.

[128] FERC eLibrary No. 20130620-4015 at 3

[129] See, *e.g.*, https://www.bestmaterials.com/PDF_Files/concrete-repair-guide-usbr.pdf ; https://nebula.wsimg.com/6d22154a2504a248dbd4457c6e6e20f9?AccessKeyId=8174FC00049DDC86865D&disposition=0&alloworigin=1

REC-1 WHITEWATER BOATING

3.0 STUDY GOALS AND OBJECTIVES

EDISON: *Document potential conflicts of boating flows with other recreation users and identify strategies to mitigate those conflicts.* (REC-1 at 1.)

KRB: There is no evidence of a conflict among user groups when it comes to flows. To the contrary, anglers and boaters are in agreement that natural flows should obtain. Further, as Edison consultant John Gangemi has noted, "Scheduled whitewater releases . . . are compatible with other recreational uses of the river *as has been demonstrated in countless other relicense proceedings across the country*. Angling use and whitewater recreation are *compatible* uses despite vociferous arguments to the contrary. *No study in any relicense proceeding has demonstrated that flow fluctuations from whitewater releases decrease the catch rate on the same day of the release*."[130] We accordingly ask that the language about user group conflict be stricken from the proposal.

5.0 EXISTING INFORMATION

EDISON: *Southern California Edison (SCE) conducted a Whitewater Flow Study (SCE, 1994) that will be reviewed during the Desktop Review as part of Phase 1.* (REC-1 at 4.)

KRB: Edison again announces its intention to rely upon the 1994 on-water boating study to inform issues regarding whitewater mitigation.[131] We do not believe that study's conclusions as to the lower end of flows worthy of protection remains valid, and the study accordingly fails to capture the full inventory of recreation days lost to project operations. We initially note that flows between 325 and 650 cfs were simply not tested in that study.[132] Furthermore, boating preferences have changed since the study was conducted. Whitewater boating may not have been in its infancy when the study was conducted, but it was still in its formative years. As the sport has matured, three elements have conspired to increase public interest in boating at lower flows.

First is the influence of "creeking." Creek boating began on creeks — low water, sufficiently steep and channelized tributaries — and its popularity has expanded to low water, sufficiently steep and channelized rivers. The PAD concedes that the makeup of "Segment 1" — the seven-mile stretch immediately below Fairview Dam, including the popular Fairview, Chamise, and upper Ant Canyon runs — is more channelized and sports a higher gradient than Segment 2, making it more suitable for low water runs.[133]

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[130] FERC eLibrary No. 20021009-5038 at 10 (italics added)

[131] See also PAD at 5-139 & 5-140, 6-5; PAD Appendix A-1 through A-3 & REC-1 at 4; 2021FEB10 TWG

[132] FERC eLibrary No. 19940802-0010 at .tif 118 [description of 1994 study flows]

[133] PAD at 5-52

Second, boat designs have changed dramatically since 1994. Boat ergonomics have increased boater comfort while increased rocker, progressive rocker, and neo-displacement hull designs have made boats more comfortable and boaters more able to negotiate tight maneuvers and wet boulder engagements — to the point such experiences are pleasant and challenging features of whitewater recreation.

Third, boater skills have changed. In 1994, the "boof" stroke had yet to be born of its parent the "ski jump." The boof stroke enables boaters to keep the nose of the boat from submerging on steep drops. There are classes dedicated solely to teaching the boof stroke, and it is used to boater advantage on downspouts of water, wet boulder faces, or combinations of the two.

KRB is confident that a contemporary on-water study would return different results than the 1994 study on the low end of enjoyable flows. Boaters capable of negotiating the dewatered reach of the NFKR generally enjoy flows starting around 200 cfs in Segment 1. We have seen commenters in agreement during the last relicensing proceeding; we have also seen that whenever the project is offline and flows approach 200 cfs, boaters use Segment 1.[134] We believe a new on-water study is in order, whether through tailoring the flow level with the diversion at Fairview Dam or through reasonably contemporaneous reporting of actual boating trips at targeted flow levels. (See *post*.) For these reasons, we ask that reference to the 1994 boating study be removed from the proposal.

6.1. LEVEL 1: DESKTOP REVIEW OF EXISTING INFORMATION

EDISON: *Literature review will include reviewing the 1994 Whitewater Flow Study (SCE, 1994), whitewater guidebooks, magazine publications with a focus on whitewater recreation and online river information pages.* (REC-1 at 4.)

KRB: See our comments on Edison's use of this study, directly above. We ask that reference to it be removed for the same reasons.

6.3. LEVEL 3: INTENSIVE STUDY

EDISON: *The Flow Comparison Survey would be similar to other studies conducted by American Whitewater to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible and/or have unpredictable flow conditions (American Whitewater, 2017 and 2021).* (REC-1 at 6.)

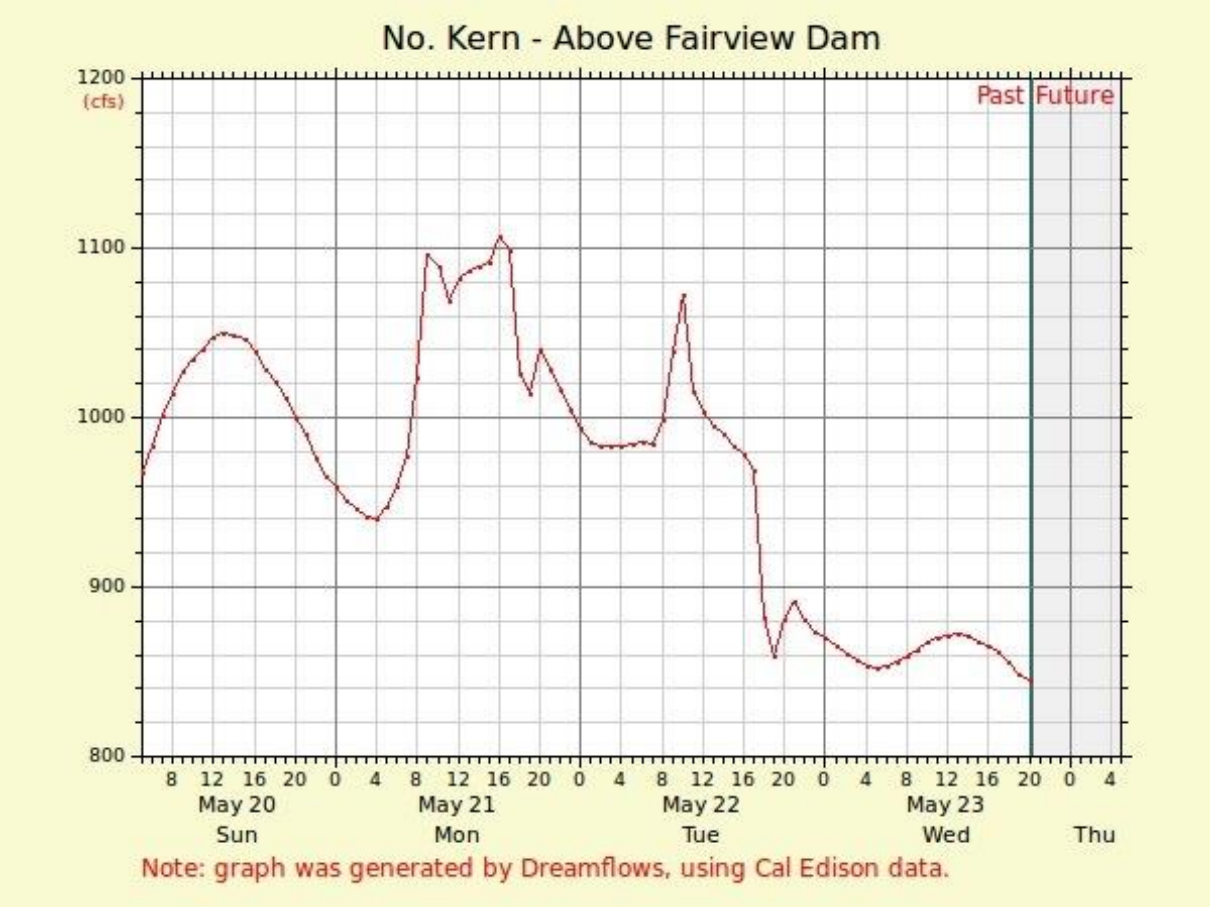
KRB: Twice prior Edison has cited its 1994, on-water boating study. Now Edison claims such a study is "not possible." The existence of the 1994 study proves the only thing preventing an updated on-water study is lack of will. This is shown by the old study's

[134] KRB SD1 at 48-55 & 59-61

reasonable efforts to work with the hydrograph it was given that year.[135] It is shown further by an analysis of how many days per year, on average, certain flows can be achieved in the dewatered reach by Edison's ability to "shape" flows anywhere from the level of natural incoming flow at Fairview Dam to a figure 600 cfs below that level. For instance, if incoming flows are 900 cfs, Edison could set the flow in the dewatered reach *anywhere between 300 and 900 cfs for study*. That capability is a powerful tool for study use.

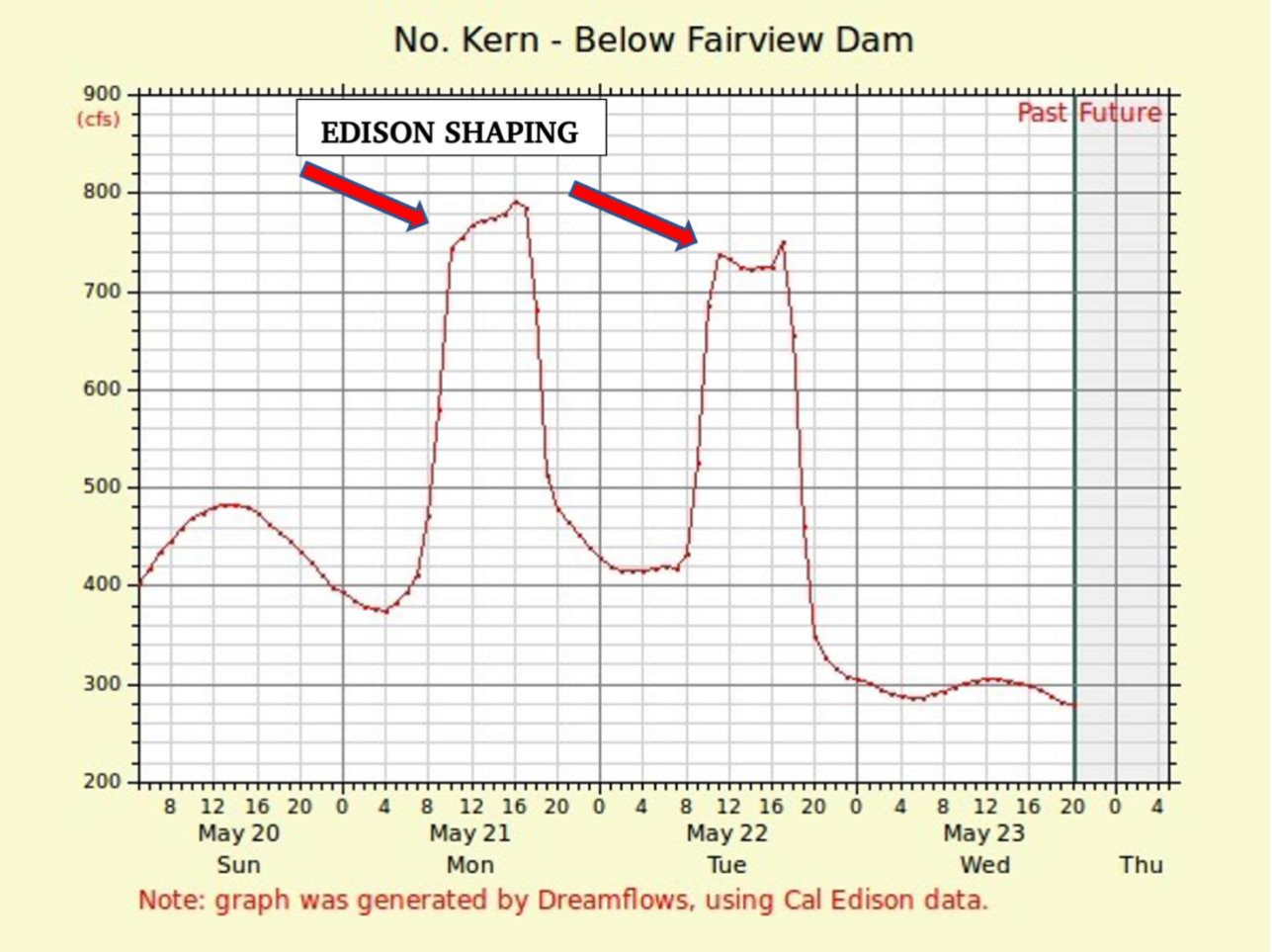
Here is an example of Edison shaping flows in the dewatered reach from May 2018; the first chart shows flows above Fairview Dam, the second below:

Figure 1: Natural Flows above Fairview Dam



[135] 1994 Whitewater Study, "Plan of Action for conducting Whitewater River Evaluation and Preparing Summary Report" at .tif 143-155 [FERC eLibrary No. 19940802-0010]

Figure 2: Targeted Flows below Fairview Dam (May 21 & 22)



As can be seen above, flows above Fairview Dam between 10 a.m. and 5 p.m. on May 21 were between 1,000 and 1,100 cfs. Edison was able to shape the flows below Fairview and keep them at about 775 cfs (760-790). On May 22, incoming flows were 980 to 1,070 cfs, and Edison shaped flows below the dam at about 730 cfs (720-740).

The fact that Edison can shape flows below Fairview anywhere between the level of incoming flow to a level 600 cfs below that figure means there is a vast inventory of days upon which different flow levels could be tested in the dewatered reach. KRB took the daily average flow data from the last 25 years[136] and found the following average numbers of days upon which different flow levels could be tested annually:

[136] USGS gauges:
https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11185500 &
https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11186000

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
200	299	4780	191
300	399	3276	131
400	499	2184	87
500	599	1757	70
600	699	1461	58
700	799	1218	49
800	899	1014	41
900	999	933	37

These figures show there to be more than a month's worth of days on average — indeed, two or more months' worth at the 600-699 cfs range and below — for testing at these relevant ranges.[137]

Tightening the targeted range, moreover, does not appreciably decrease these opportunities; here is the same data with the testing range decreased to 50 cfs, which is about the range tested in 1994 ("Probable Flow During Boating")[138]:

[137] Spreadsheet available: https://www.kernriverboaters.com/s/KRB_KR3_SHAPE_FLOWS.xlsx

[138] 1994 Whitewater Study at .pdf 118:

	Approximate Peak Flow Below Dam	Probable Flow During Boating	Average Daily Flow Below Dam
May 11	322	298 - 322	261
May 12	696	670 - 696	560
May 13	1085	1048 - 1085	919
May 14	1239	1165 - 1239	1065
May 15	1357	1315 - 1357	1180

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
200	249	4681	187
250	299	3926	157
300	349	3191	128
350	399	2581	103
400	449	2110	84
450	499	1863	75
500	549	1677	67
550	599	1547	62
600	649	1402	56
650	699	1273	51
700	749	1166	47
750	799	1075	43
800	849	967	39
850	899	922	37
900	949	883	35
950	999	828	33

Again, as these figures show, the only thing preventing an update to the 1994 study is lack of will.

The two AW studies cited by Edison are inapposite. One was an internal study[139]; the other the result of a grant[140]; neither was conducted during a FERC proceeding, and thus both were done to keep costs down rather than to obtain the most reliable data with the best available science. Here, by contrast, we have a relicensing proceeding and an applicant that can substantially affect flows in the dewatered reach. An on-water study has been conducted before, and it can be again. There is no reason to settle for less reliable data when an on-water study would most accurately capture project effects upon whitewater recreation for this outstanding public resource.

Edison contends that an on-water study can only be conducted over a wide range of flows: "A controlled flow study below Fairview Dam would be limited to collecting data for a narrow range of flows, thus failing to meet the study objectives as described in Whittaker et al. (2005)." This is a misrepresentation; Whittaker actually says the opposite. Whittaker

[139] https://www.americanwhitewater.org/content/Article/view/article_id/33759/

[140] https://www.americanwhitewater.org/content/Article/view/article_id/jAtde6mnf7fUPZoVvAvD9/

states: "Three to four flows are commonly assessed in these [on-water] studies,"[141] and he makes clear that on-water studies "work best *when they are focused on discrete flow ranges where more precision is needed*."[142]

No one in this proceeding has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 700 cfs and above is incorrect. The only suggestion is that as times have changed, boaters enjoy paddling at even lower flows, the project's negative effects on recreation have increased commensurately, and thus flows below those levels should be tested.[143] We believe that — at a minimum — an evaluation of flows at 300, 400, 500, and 600 cfs is in order to capture present-day project effects on all craft. These levels fall below those identified as enjoyable by various craft in the 1994 study — *i.e.*, these are four levels where, in Whittaker's words, "more precision is needed." Nevertheless, the particular levels of flow to be evaluated can await guidance from the level 1 and 2 portions of the proposed study.[144]

For these reasons, we ask that the proposal be updated to include an on-water evaluation of relevant targeted flows to fully capture project effects on recreation.

EDISON: *The lack of storage in the reservoir at Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR severely limits the scheduling and flow volume for a controlled flow study.* (REC-1 at 6.)
KRB: Edison fails to square how it conducted an on-water study in 1994 at multiple flow levels given these "severe" limitations. The answer is that the limitations are not as severe as Edison would have the Commission think, as shown by the existence of that old study and the large number of days on average at which various targeted flows could be tested, described above. We ask that this sentence be modified accordingly.

EDISON: *The online flow comparison survey resolves the limitations of a controlled flow study at the Project. The online flow comparison survey is not limited to the unpredictable snowpack and associated flows during the ILP study period. Whitewater boaters can provide input based on experiences over a wide range of water year types, and the online approach greatly expands the pool of study participants regardless of geographic location or schedule. The goal of the survey is to improve the precision for developing flow preference curves for a variety of watercraft types for the respective whitewater segments in the 16-mile Fairview Dam Bypass Reach.* (REC-1 at 6.)

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[141] *Id.*, at 26
[142] *Id.*, at 27 (italics added)
[143] KRB SD1 at 48-61
[144] *Id.*, at 26

KRB: The proposed survey "resolves" these purported issues by decreasing the rigor and reliability of the data obtained. In our experience, most boaters do not independently investigate, follow, log, or record flows and the experiences they have had with those flows. As Whittaker cautions, "Assessing how well users are calibrated to a gage is important with [the flow survey] method. Pre-testing or pre-study interviews/focus groups should be considered to probe whether users really pay attention to a gage through the range of interest."[145] Further, "Some users may not independently evaluate flows, and simply repeat 'conventional wisdom' about acceptable or optimal flows for a recreation opportunity. Unfortunately, this method is limited in its ability to distinguish independent evaluations from those that are 'passed down' over the years."[146] As Whittaker concludes, far greater *reliable* resolution of boater preferences is to be found with on-water studies.[147]

Furthermore, unlike Edison, Whittaker is undeterred by a project's inability to pinpoint flows with storage: "In some cases, the study may capitalize on natural flows instead of controlled flows," Whittaker writes.[148] Indeed, that is precisely how the 1994 study came to be. But as we have shown above, the existence of Fairview Dam and its capacity to divert up to 600 cfs greatly *expands* the ability of Edison to conduct a study on a range of targeted flows. No one has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. We still do. The only suggestion is that, as times have changed, we enjoy flows lower than those levels. As Chris Brown, owner of the Whitewater Voyages rafting company has commented, the project "eliminates the very good Kayaking and "low water" craft (splashyaks, shredders, paddle board, etc.) flows of 200-700cfs."[149] We agree that the low end of the numbers obtained by the 1994 study has come down, the project's negative effect on recreation has increased commensurately, and thus flows below those levels should be tested.[150]

There is another way to obtain reasonably reliable results comparable to a targeted on-water flow study: namely, to gather survey results that are reasonably contemporaneous with actual recent boating trips at targeted flow ranges. Tying survey results to actual recent boater trips goes aways towards reducing the problems of memory haze and groupthink identified by Whittaker. This can be accomplished through one of two means:

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[145] *Id*., at 24
[146] *Ibid*.
[147] *Id*., at 26
[148] *Ibid*. Note, moreover, that the "natural flows" Whittaker references invariably entail a diurnal, and thus what is tested is user experience in a reasonably constrained range of flow, as seen in the 1994 study. See 1994 Whitewater Study, at .tif 118 ("probable flow during boating")
[149] FERC eLibrary at 20220121-5024
[150] KRB SD1 at 48-61

either through an intercept team or through a controlled online reporting system. Intercepting boaters taking out at segments when the flows are "right" — *i.e.,* at targeted levels of interest for study — appears to provide a heightened quality of data in comparison with a more generalized survey untethered to actual recent boating trips. Results of intercept surveys would be contemporaneous with the segment and flow level run, and thus there would be no issue with memory and less concern about the rote transmission of "conventional wisdom." Alternatively, a controlled online survey system could be established that asks boaters to report within a reasonable time (say, 18 hours) of their running a trip on a segment. Boaters could describe the date, time, and experience on the segment run per study design, and those responses would then be cross-checked against actual gauge information and included in (or excluded from) the study analysis. Again, these reasonably contemporaneous responses would be relatively free of issues regarding memory haze or groupthink that infect a more generalized survey untethered to actual boating trips. Boaters would not even have to indicate what they thought the flow was — flows would be judged with reference to gauge information by time and date and survey results amalgamated according to targeted levels.

For these reasons, we ask that the generalized survey approach, untethered to actual boating trips, be removed from this proposal and replaced with an on-water study approach, whether through a controlled online survey of actual boating trips, the interception of actual boating trips — including a commitment from Edison to shape flows to achieve the desired amount of surveys for each craft at each level and each segment — or, our preferred method, an on-water study that takes advantage of Edison's ability to shape flows below Fairview Dam.

EDISON: *The online whitewater flow comparison survey will be designed to obtain information on flow preferences in the Fairview Dam Bypass Reach. Survey questions will ask respondents to rate the acceptability of a range of flows for each whitewater segment and watercraft type, timing of use, preferred whitewater segments, river access locations, flow information needs and comparison with other whitewater opportunities in the Kern River basin.* (REC-1 at 7.)

KRB: The issue in this proceeding is how to capture and understand the project's effect on recreation *in the dewatered reach — i.e.*, it seeks to capture real project effects. "Comparison with other whitewater opportunities in the Kern River basin" does not begin to answer that question. Further, the survey as described fails to vet the degree to which boater recall is based in fact — namely, whether the recounting of boater experience with other opportunities is reliable given that they are untethered to actual boating trips. For these reasons, we ask that the comparison element be stricken from the proposal.

IV • KRB STUDY REQUESTS

KRB STUDY REQUEST 1: *Aesthetic Flows*

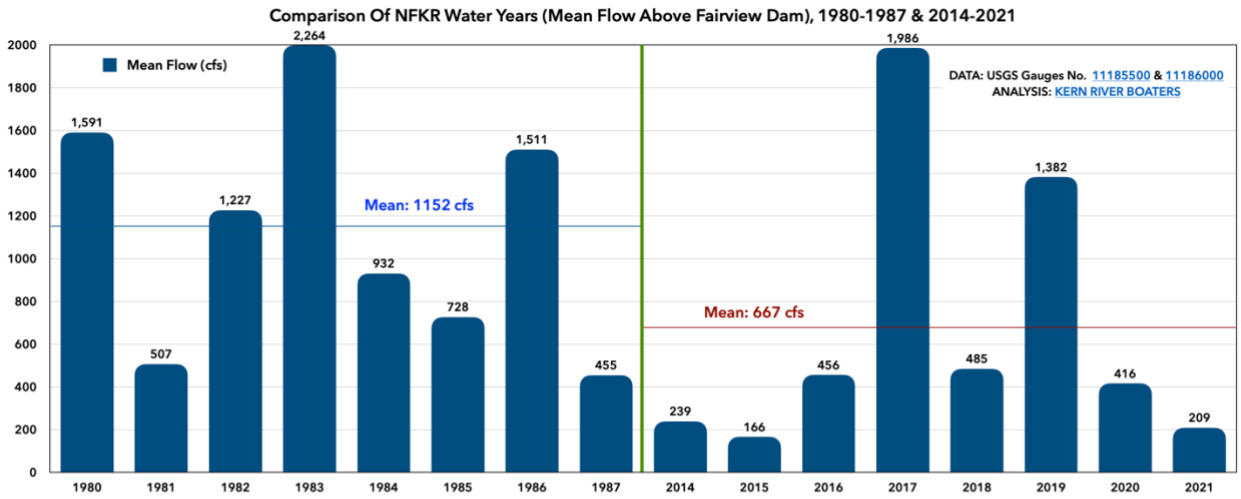
RESPONSE TO COMMENTS

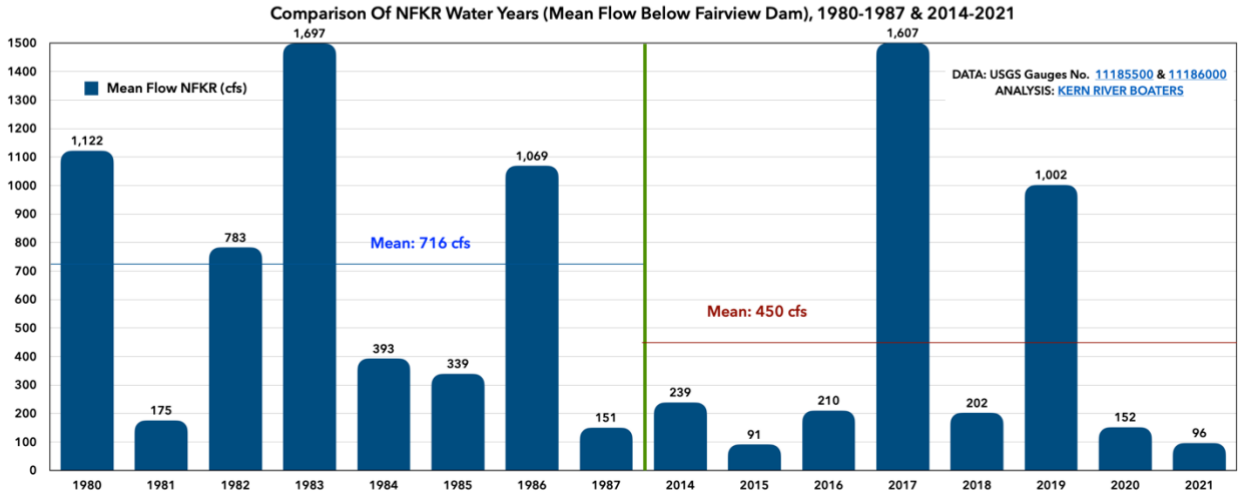
EDISON: *There is no evidence of a problem. . . . Regarding the Fairview Dam Bypass Reach for Wild and Scenic eligibility, per the 1982 North Fork Kern WS River Study / Final Environmental Impact Statement (USFS, 1982), the SQF stated that "A small dam detains and diverts water from the river channel at a point approximately 2 miles downstream from the Johnsondale Bridge, but does not create an extensive impoundment, nor does it greatly alter the free-flowing character of the river.*" (PSP at 29.)

KRB: The "problem" is the result of Edison dewatering the NFKR to levels far below the lowest levels of natural flow. Over the existing POR (WY 1997-2021), the daily average flow above Fairview Dam fell below 125 cfs just 5% of the time. Flows that low are objectively rare for this river corridor. By contrast, flows in the dewatered reach below Fairview Dam fell below 125 cfs 44% of the time due to project operations. That number would have been even higher had the project not been offline for repairs so often (completely offline for 1,506 of the 9,131 days in the POR, and partially offline for at least hundreds more). Project operations turn what are rare low flow conditions on the NFKR into a routine, near-majority of days occurrence. It is reasonable to expect such dewatering to have a negative effect on the river as experienced by the humans who live in or visit that environment: the river was formed under a natural hydrograph; an unnaturally impaired hydrograph can render that formation aesthetically displeasing. Dewatering the river at Fairview Dam narrows the waters below, dries the riverbanks, exposes rocks in the riverbed that would otherwise be covered, reduces water speeds, lowers pool heights, eliminates many riffle sections, and increases areas covered with algae and other pond scum.

As for the 1982 USFS study team's opinion that Fairview Dam "does not greatly alter the free-flowing character of the river" below, it is important to note that this judgment was essential to the eligibility of the dewatered reach as a Wild and Scenic River — without it, the reach would have been ineligible.[151] This was accordingly a functional judgment reflecting the relatively small size of the dam and its impoundment as well as the lack of river course alteration. A fair reading of the 1982 FEIS reveals it does not have much to say about aesthetics or visual quality based on existing flow levels in the dewatered reach; it offers no aesthetic judgment. Furthermore, flows at the time of the study and designation were much higher than those recently experienced in this drainage:

[151] WSRA at § 15(b)





The 1994 USFS W&SR CMP describes a visual resource as "The composite of basic terrain, geologic features, *water features*, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors," and directs USFS to "Strive for higher visual quality whenever practical."[152] It offered this direction notwithstanding the functional conclusion of the 1982 FEIS cited by Edison; there is obviously room for improvement, as shown in the photographs accompanying our updated proposal.

Even if the passage cited by Edison from the 1983 FEIS constituted an aesthetic judgment, it would constitute a *professional* aesthetic judgment, and such is not determinative here. Research cautions us that the aesthetic judgments of river professionals

[152] 1994 USFS N&SFKR W&SR ROD&CMP at 45 & "Appendix C" at 18 (italics added), available: https://drive.google.com/file/d/1n0D8equMZaOkwLNDGenEkV54n1WACWkp

do not line up with the judgments of the public at-large.[153] Moreover, in the last proceeding, USFS noted that some commenters requested increased minimum flows for "visual quality." USFS *did not* state there was "no evidence of a problem." Rather, it averred, "This topic was brought out when the licensing process was nearing completion and too late to address this licensing."[154] KRB has tried to raise this issue at the earliest possible moment in this proceeding. The issue of the project's impact on aesthetics in the dewatered reach has never been scientifically studied during the project's 101-year-long encumbrance of this outstanding river. We should study it now. For these reasons, we ask that the Commission direct Edison to implement our updated aesthetic flows study request.

KRB SR-1: AESTHETIC FLOWS
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to describe and evaluate the effects of project operations on aesthetic flows throughout the dewatered reach of the project — 16 miles of the Wild and Scenic North Fork Kern River — and to evaluate potential measures to alleviate those effects. This would be accomplished by evaluating the aesthetic benefit of various flows released into it from Fairview Dam. The objectives of this study are to:

(1) Document the existing aesthetic character and conditions of the dewatered reach;
(2) Identify key observation points;
(3) Collect photo and video documentation under various existing and controlled flow conditions throughout the reach;
(4) Conduct a focus group assessment of controlled flow conditions at key observation points;
(5) Determine the operational feasibility, effects on generation, and cost of providing aesthetic flow releases;
(6) Evaluate the potential effects of aesthetic flow releases on other resources including recreational uses, aquatic resources, water quality, and project generation.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

[153] Shelby, B., Brown, T.C. and Taylor, J.G., "Streamflow and recreation," US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (1992)
[154] 1998 USFS NOD FONSI at Appendix E, 8

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including aesthetic values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including aesthetic enjoyment.

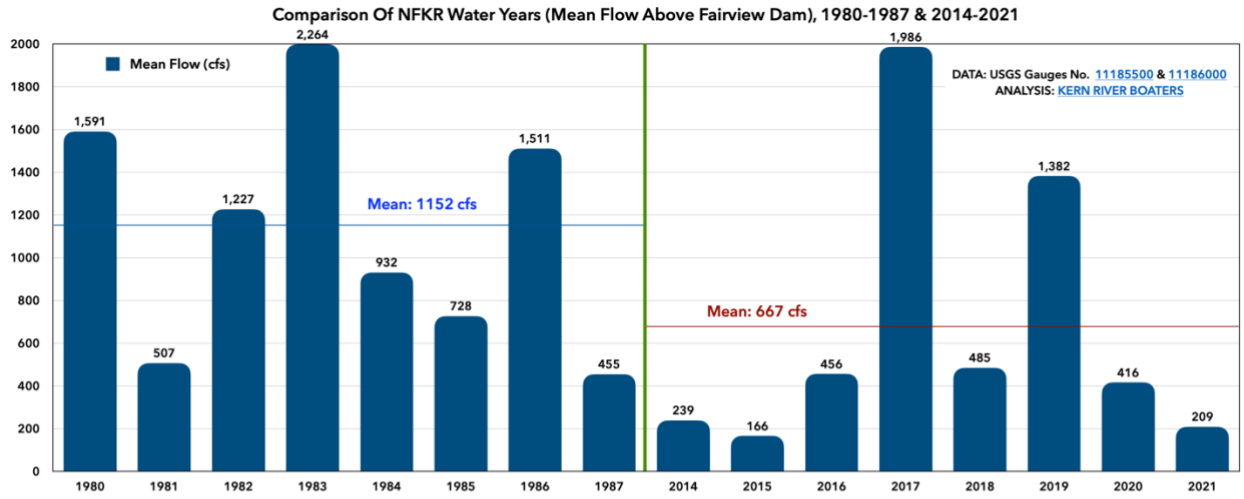
The dewatered reach of the Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California. It also has inherent outstanding values, and its visual values are to be conserved and enhanced under the Wild and Scenic River Act.[155] It is unique in that the dewatered reach runs close to, and is frequently viewable from, the adjacent state highway, Mountain 99. More of it is viewable from the many popular campgrounds, developed and primitive, directly next to the river. Aesthetic changes have the potential to affect public use and enjoyment of the dewatered reach. To fully evaluate the project's effect on aesthetic flows over within the dewatered reach, and to balance potential enhancement opportunities with their costs, an aesthetic flow study is relevant to the public interest. It would also assist USFS with its obligation under Section 7 of the Wild and Scenic River Act to evaluate whether a proposed license for KR3 would directly and adversely impact the river.

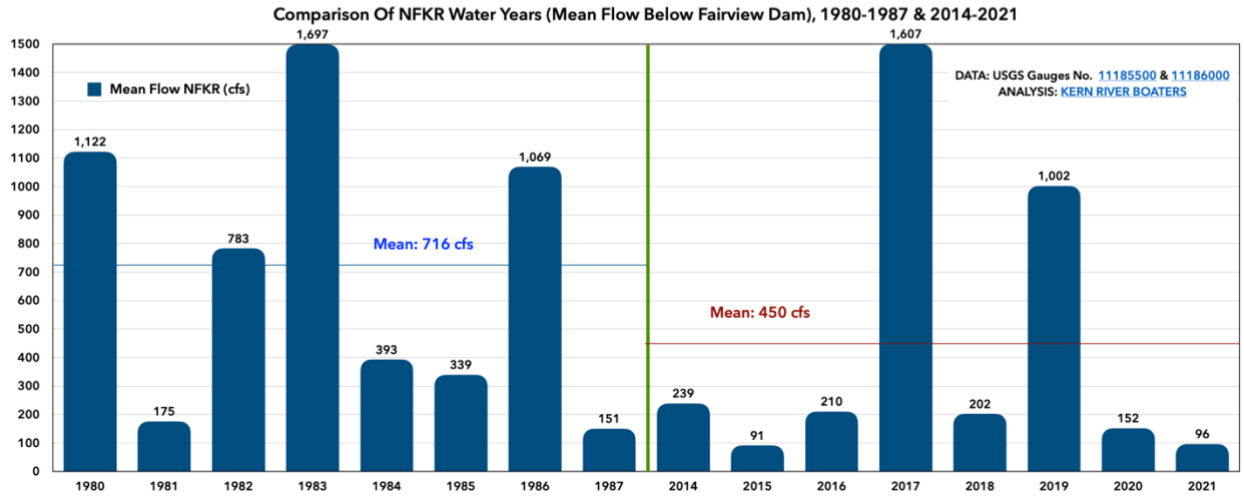
Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The PAD generally describes the visual characteristics of project facilities and surrounding project lands.[156] However, it does not describe the relationship between decreased flows and aesthetics in the dewatered reach, nor does it cite any studies that characterize or evaluate that relationship. Information on the aesthetic conditions collected during this study would inform a decision on whether additional minimum releases from the project's diversion would be warranted to improve the aesthetic quality of the dewatered reach. In the last proceeding, USFS noted that some commenters requested increased minimum flows for "visual quality," but averred, "This topic was brought out when the licensing process was nearing completion and too late to address this licensing."[157] It is ripe to be addressed at this early stage.

[155] 1994 USFS N&SFKR W&SR ROD&CMP at 45
[156] PAD at 5-158 through 5-170
[157] 1998 USFS NOD FONSI at Appendix E, 8

A 1982 USFS study team stated that Fairview Dam "does not greatly alter the free-flowing character of the river" below. However, it is important to note that this judgment was essential to the eligibility of the dewatered reach as a Wild and Scenic River — without it, the reach would have been ineligible.[158] This was a functional judgment reflecting the smallness of the impoundment and dam and the lack of river course alteration. It was not an aesthetic judgment of the visual quality of the dewatered reach. A fair reading of the 1982 FEIS reveals it does not have anything to say about aesthetics or visual quality attending fish flow releases in the dewatered reach. Furthermore, flows at the time of the study and designation were much higher than those recently experienced in this drainage:





The 1994 USFS W&SR CMP describes a visual resource as "The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land

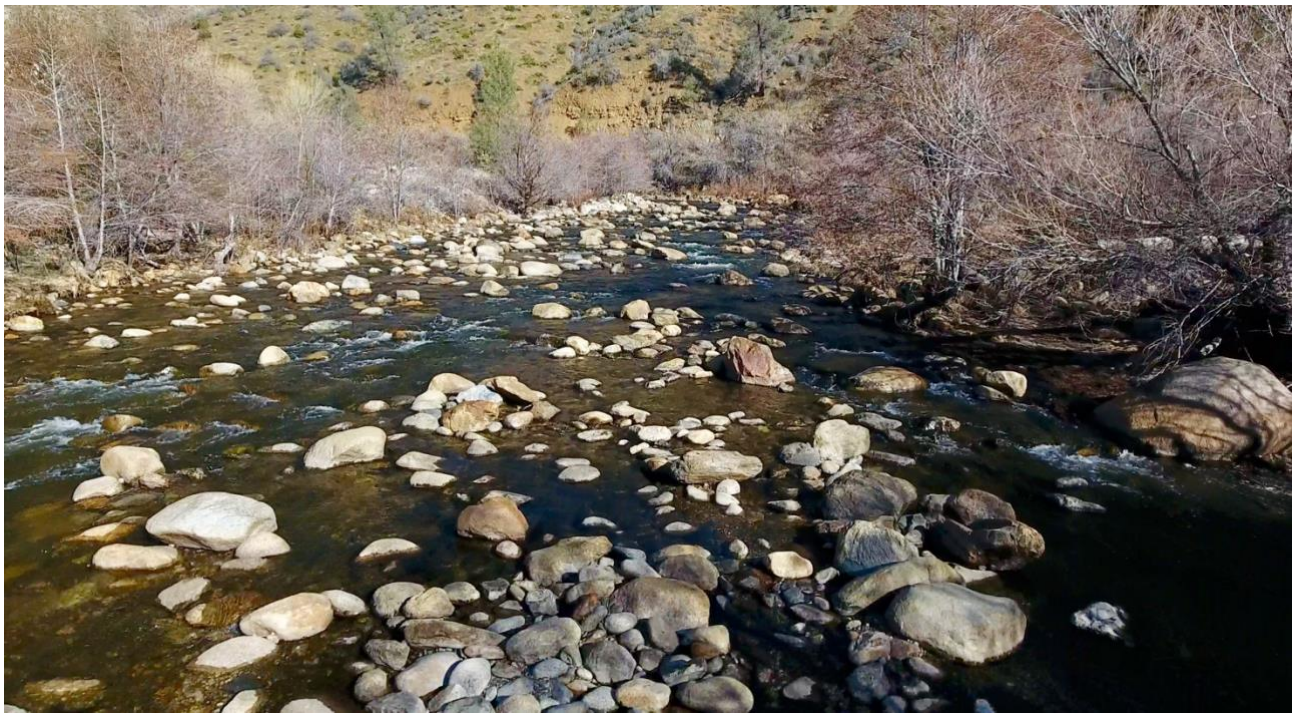
[158] WSRA at § 15(b)

unit and influence the visual appeal the unit may have for visitors," and directs USFS to "Strive for higher visual quality whenever practical."[159] It offered this direction notwithstanding the functional conclusion of the 1982 FEIS cited by Edison; there is obviously room for improvement.

Even if the passage from the 1982 FEIS constituted an aesthetic judgment, it would constitute a professional aesthetic judgment, and such is not determinative here. Research cautions us that the aesthetic judgments of river professionals usually do not line up with the judgments of the public at-large.[160] Moreover, in the last proceeding, USFS noted that some commenters requested increased minimum flows for "visual quality." USFS *did not* state there was "no evidence of a problem." Rather, it averred, "This topic was brought out when the licensing process was nearing completion and too late to address this licensing."[161] KRB has raised this issue at the earliest possible moment in this proceeding. The issue of the project's impact on aesthetics in the dewatered reach has never been scientifically studied during the project's 101-year-long encumbrance of this outstanding river.

Edison routinely dewaters the NFKR to levels far below the lowest levels of natural flow. Over the existing POR (WY 1997-2021), the daily average flow above Fairview Dam fell below 125 cfs just 5% of the time. Flows that low are objectively rare for this river corridor. By contrast, flows in the dewatered reach below Fairview Dam fell below 125 cfs 44% of the time due to project operations — almost half the time. That number would have been even higher had the project not been offline for repairs so often (completely offline for 1,506 of the 9,131 days in the POR, and partially offline for at least hundreds more). Project operations turn what are rare low flow conditions on the NFKR into a routine, near-majority of days occurrence. It is reasonable to expect such dewatering to have a negative effect on the river as experienced by the humans who live in or visit that environment: the river was formed under a natural hydrograph; an unnaturally impaired hydrograph can render that formation aesthetically displeasing. Dewatering the river at Fairview Dam narrows the waters below, dries the riverbanks, exposes rocks in the riverbed that would otherwise be covered, reduces water speeds, lowers pool heights, eliminates many riffle sections, and increases areas covered with algae and other pond scum. The following images depict the dewatered reach with about 50 cfs in the riverbed on a day when 550 cfs was incoming at Fairview Dam:

[159] 1994 USFS N&SFKR W&SR CMP at 45 & "Appendix C" at 18
[160] Shelby, B., Brown, T.C. and Taylor, J.G., "Streamflow and recreation," US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station (1992)
[161] USFS KR3 FONSI (1998) at Appendix E, 8



Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Project operations leave only 40-130 cfs, or less, in the dewatered reach when incoming flows are below 640-770 cfs and decreases all incoming flows above 640 and 770 cfs by 600 cfs. Edison dewaters the NFKR to levels far below the lowest levels of natural flow. As explained above, project operations turn a rare occurrence of flows below 125 cfs (5%) into a routine phenomenon (44%). That number would have been even higher had the project not been offline for repairs so often (completely offline for 1,506 of the 9,131 days in the POR, and partially offline for at least hundreds more). Project operations accordingly turn what are very rare low flow conditions on the NFKR into a routine, typical occurrence. The results of this study would provide a separate, independent vector of analysis for a minimum flow regime, and it may dovetail with agency goals on issues such as environmentally required minimum flows, angler-enjoyable fish flows, water quality flows, and enjoyable recreational flows.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The aesthetic flow study should follow the methods outlined in *Flows and Aesthetics: A Guideline to Concepts and Methods* (Whittaker 2017). These guidelines recommend a progressive approach with phased efforts of increasing resolution.

Phase 1 (desktop analysis and reconnaissance assessment) includes the characterization and documentation of key viewing locations and key viewing characteristics (i.e., waterfalls, vegetation, distance, etc.) in the dewatered reach. Potential use and access to these key viewing locations would be studied. From the information gathered during Phase 1, a controlled flow evaluation form would be created. In Phase 2 (documentation and assessment of controlled flow releases), Edison would tailor its diversion to release target flows selected in consultation with a focus group that would evaluate the flows. The 2017 guidelines provide considerations and recommendations on how to best identify key observation points, collaborate with the public, and conduct surveys, among other study components.

Desktop Analysis and Reconnaissance Assessment (Phase 1)

Focus Group

A focus group composed of interested stakeholders should be assembled to provide assistance and input. These stakeholders should include representative members from the public, not just from the Kern River Valley, but from its primary visitor base of Southern California, from Bakersfield, out to Ventura County, down through Los Angeles, Riverside and Orange counties, and concluding in San Diego. The focus group members should allow for collaboration and agreement on multiple decision points regarding the development of the study.

Key Observation Points

In consultation with the focus group, identify key observation points to represent important landscape perspectives and viewing opportunities of the dewatered reach. Key observation points should include at least some of the following sites with extended roadside visuals and turnouts, from North to South (identified by corresponding rapid name): Bomb's Away, Fairview, Hairy Ferry, Boateater, Passing Lane, Redrock, Squashed Paddler, Golf Course, and Fender Bender. KOP's should also include views from at least some of the developed (*e.g.,* Fairview, Goldledge, Camp 3) and primitive (*e.g.*, Chamise, Springhill, Chico Flat) campsites. The assessment should include identification of key viewing characteristics (*e.g.,* channels, key features/structures, waterfalls, pools) and characterization of potential use and access of these areas.

Historic Data Gathering

Assess and characterize the timing and flow ranges of historic flow exceedance events to characterize existing flow conditions as they relate to the aesthetic character of the dewatered reach.

Documentation and Assessment of Controlled Flow Release (Phase 2)

Controlled Flow Conditions and Evaluation Form

With the assistance of the focus group, determine the number of releases and appropriate aesthetic flow levels for conducting a review/evaluation of identified flows from the key observation points. An explanation of the targeted aesthetic flows should be included in a study progress report provided to the Commission and interested stakeholders. A broad range of flows would allow evaluators to conduct a meaningful evaluation and identify a minimum acceptable flow and an optimal aesthetic flow. At least four flows should be evaluated as part of the flow study: current minimum fish flows, and additional low, moderate, and high flows. Edison maintains a significant ability to shape flows below Fairview Dam anywhere from the level of natural flow above Fairview Dam to a level of 600 cfs less — and anywhere in between.[162]

A numeric rating evaluation form of the overall view and specific elements (*e.g.,* sound level, amount of turbulence) should be developed. The form should include questions pertaining to the evaluation of the aesthetic conditions for each key observation point location under the targeted flow ranges.

Controlled Flow Assessment

The focus group should review the flows on-site at the key observation points, complete the evaluation form, and participate in a focus group discussion (off-site). Photo and video (with sound), documentation of the observed flows reviewed by the focus group should be documented.

Data Analysis and Report Preparation

The operating consultant should prepare a report that includes discussion of the study methodology, study area, analysis and results of the Aesthetic Flow Study. The report should document the information compiled from the above efforts, including analysis and summary of the focus group evaluation form responses and discussions. The report should also include an assessment of potential effects of providing aesthetic flows on other resources, such as recreation opportunities, aquatic resources, and project power generation. Comments and criticisms of the analysis should be incorporated into the report as an appendix.

The proposed aesthetic study follows methods outlined in *Flows and Aesthetics: A Guideline to Concepts and Methods* (Whittaker 2017). Therefore, these methods are consistent with generally accepted methods for conducting an aesthetic flow study.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The anticipated cost for the aesthetic flow study request is estimated to be within the range of $20,000 to $30,000. There are no proposed alternative studies.

[162] See *post*, KRB STUDY REQUEST 8: Whitewater Flows, "Comments and Response"

KRB STUDY REQUEST 2: *Water Quality Flows*

RESPONSE TO COMMENTS

EDISON: *The remaining proposed study components are not necessary to complete the Application for New License. The run-of-river design of the Project does not contribute substances to the bypass reaches, thus any effects of the Project on water quality are generally limited to those caused by alterations to streamflow. For example, arsenic levels were previously measured in bypass reaches and found to reflect local watershed conditions, as the Project does not contribute arsenic to the watershed. Therefore, there is no Project nexus to include arsenic sampling as part of this relicensing.* (PSP at 31.)

KRB: Edison similarly states it does not contribute coliform bacteria to the dewatered reach ("the Project does not introduce fecal coliform into any reach"[163]), yet it has acceded in part to our request for the study of coliform bacteria. Arsenic is no different: simply because the project does not contribute this substance to the dewatered reach does not mean the project's operations do not directly influence the concentrations of it in the reach. Dilution is an obvious, naturally occurring phenomenon, and by removing clean water from the dewatered reach, the project lessens the ability of that water to dilute the offending substance within the reach. Dilution through increased flows may meaningfully contribute to the health of this river and its human users. Edison offers no principled reason to test for bacteria but not for arsenic. Furthermore, Edison's proposal for bacterial testing is inadequate for the purpose of learning to what degree increased flows can dilute these substances; Edison proposes to merely test for the presence of coliform bacteria, whereas this study proposes to test for the presence of coliform bacteria and arsenic and then test whether reasonably contemporaneous additional flows can successfully dilute them. For these reasons, we ask that the Commission direct Edison to implement our updated water quality study.

KRB SR-2: WATER QUALITY FLOWS
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

This study would describe and evaluate the effects of project operations on water quality throughout the dewatered reach of the project — 16 miles of the Wild and Scenic North Fork Kern River — and to evaluate potential measures to alleviate those effects. This would be accomplished by evaluating the benefit to water quality in the dewatered reach

[163] PAD at 5-48

afforded by various flows released into it from Fairview Dam. The objectives of this study are to: (1) Document the existing water quality conditions of the dewatered reach; (2) Identify whether additional flows could improve those conditions; and (3) Evaluate the potential effects of water quality flow releases on other resources including recreational uses, aquatic resources, aesthetics, and project generation.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including water quality values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including water quality.

The results of this study may further inform the managing agencies' goals by providing a separate, independent vector of analysis whose results might dovetail with agency recommendations, findings, or prescriptions on issues such as ecologically required flows, aesthetic flows, angler-enjoyable fish flows, and whitewater recreational flows.

The dewatered reach of the Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California, and attracts vast numbers of visitors for camping, hiking, fishing, whitewater, and other forms of recreation throughout the year. It also has inherent outstanding values, and its water quality is to be conserved and enhanced under the Wild and Scenic River Act.[164] Water quality has the potential to affect public use and enjoyment of the dewatered reach, as well as public health. To fully evaluate the project's effect on water quality within the dewatered reach, and to balance potential enhancement opportunities with their costs, a controlled-flow water quality study is relevant to the public interest.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

[164] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 46-47

The PAD generally describes what is known about the water quality of the dewatered reach — primarily from studies conducted decades ago.[165] Specific to this study request, the PAD acknowledges that levels of (1) coliform bacteria and (2) arsenic have been measured at elevated levels.[166] Further, in 1995, USFS, NPS, and CDFW concluded there was an "environmental concern" about coliform bacteria levels in the dewatered reach.[167] Human usage of the campsites next to the river has only increased since then. The PAD does not describe the relationship between flows and these two particular water quality issues in the dewatered reach, nor does it cite any studies that characterize or evaluate that relationship. USFS has noted, "High coliform bacteria counts may be responsible for instances of low DO."[168] In the last proceeding, the California State Water Resources Control Board "increased fecal coliform levels and potential solutions to the problem were flow-related."[169] The Environmental Assessment concluded, "Flows in the bypassed reach can influence bacteria counts through dilution."[170] Information on the water quality conditions collected during this study would inform a decision on whether additional releases from the project's diversion dam would be warranted to improve the water quality of the dewatered reach. Even if they are always not successful at all times, additional flows are a tool managing agencies can use to address the problem.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project presently takes the first 40-45 cfs of incoming flows at the Fairview diversion dam for minimum power generation, and then, after the seasonally varying minimum instream flow requirement is satisfied, takes the next 600 cfs. These conditions leave only 40-130 cfs, or less, in the dewatered reach when incoming flows are below 640 and 770 cfs, and decreases all incoming flows above 640 and 770 cfs by 600 cfs.

The PAD avers that project operations are not a source of coliform bacteria or arsenic, and that human activity accounts for the former and an unknown source below Fairview Dam accounts for the latter.[171] However, the PAD also concedes that project operations "influence coliform counts."[172] Even if the source of elevated coliform or arsenic levels is not the project itself and lies below the project's diversion dam, the quantity of

[165] PAD at 5-38 through 5-48
[166] PAD at 5-39, 5-48 & 5-49
[167] 1995 USFS NPS CDFW UKBFMP at V-3
[168] 1998 USFS NOD FONSI at Appendix E, 13
[169] 1996 EA at 26
[170] *Ibid*.
[171] PAD at 5-48 & 5-49
[172] PAD at 5-39

water diverted by the project may play a direct role in influencing the concentration levels of those substances. As our Supreme Court has observed, "water quantity is closely related to water quality."[173] Increases in the amount of water flowing may dilute the concentration of a harmful or contaminant substance, as Edison has conceded elsewhere.[174] And again, the 1996 EA concluded that "Flows in the bypassed reach can influence bacteria counts through dilution."[175] This effect is especially likely where the source of the contaminant is within the project affected area, and varying currents, eddies, and rapids have the potential to mix more heavily concentrated waters near the source(s) with less heavily concentrated waters. It is also true that the 1996 KR3 EA found that dilution could not satisfy EPA standards "at all times." However, the current managing agencies may find that to be the perfect getting in the way of the good; further dilution may meaningfully contribute to the health of the river and its users at many more times than current conditions allow. Further, human activity along the dewatered reach has increased since the prior proceeding, and that may make remedial measures from the flows this resource is capable of delivering worthwhile. Finally, the SWRCB did not propose dilution in the last proceeding; it may in this one.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The study should proceed in three phases. It should first employ a desktop analysis to determine what sites in the dewatered reach, at what times of year and at what flow levels are most likely to return elevated test results for bacterial or metalloid concentrations, given EPA and SWRCB guidance on acceptable contaminant levels. The results of the desktop study should then inform when and where to test for those concentrations. Finally, if elevated levels are discovered, a flow study should promptly follow an elevated test level with two or three increased flow levels for several days each to determine if bacterial or metalloid concentrations can be decreased therefrom. Edison maintains a significant ability to shape the flows in the reach below Fairview Dam from the natural flow above Fairview Dam to a flow 600 cfs less.[176] Based on available data, there appear to be a vast inventory of days at which various flow levels in the riverbed can be

[173] *PUD No. 1 v. Wash. Dep't of Ecology,* 511 U.S. 700, 719-720 (1994)
[174] FERC eLibrary No. 20210607-5005 at 3-322
[175] 1996 FERC-USFS EA at 26
[176] See *post*, KRB STUDY REQUEST 8: Whitewater Flows, "Comments and Response"

obtained — more than three months of days at each level, including more than half the year at flows below 225 cfs[177]:

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
100	124	6529	261
125	149	6311	252
150	174	5659	226
175	199	4987	199
200	224	4634	185
225	249	4247	170
250	274	3878	155
275	299	3489	140
300	324	3140	126
325	349	2853	114
350	374	2536	101
375	399	2266	91

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The cost should be an estimated $5,000. The requested study, as noted, can be to a significant extent incorporated into Edison's proposed bacteria study, and the controlled flow portion of the study would not amount to an out-of-pocket cost to Edison; it would be a lost generation opportunity in service of designing a license for vastly more generation over the next 40 years that is best adapted to this public resource and its affected users. Edison's proposal for bacterial testing is inadequate for the purpose of learning to what degree increased flows can dilute these substances; Edison proposes to merely test for the presence of coliform bacteria, whereas this study proposes to test for the presence of coliform bacteria and arsenic and then test whether reasonably contemporaneous additional flows can successfully dilute them.

[177] Spreadsheet available: https://www.kernriverboaters.com/s/KRB_KR3_SHAPE_FLOWS.xlsx

KRB STUDY REQUEST 3: *Enjoyable Angling Flows*

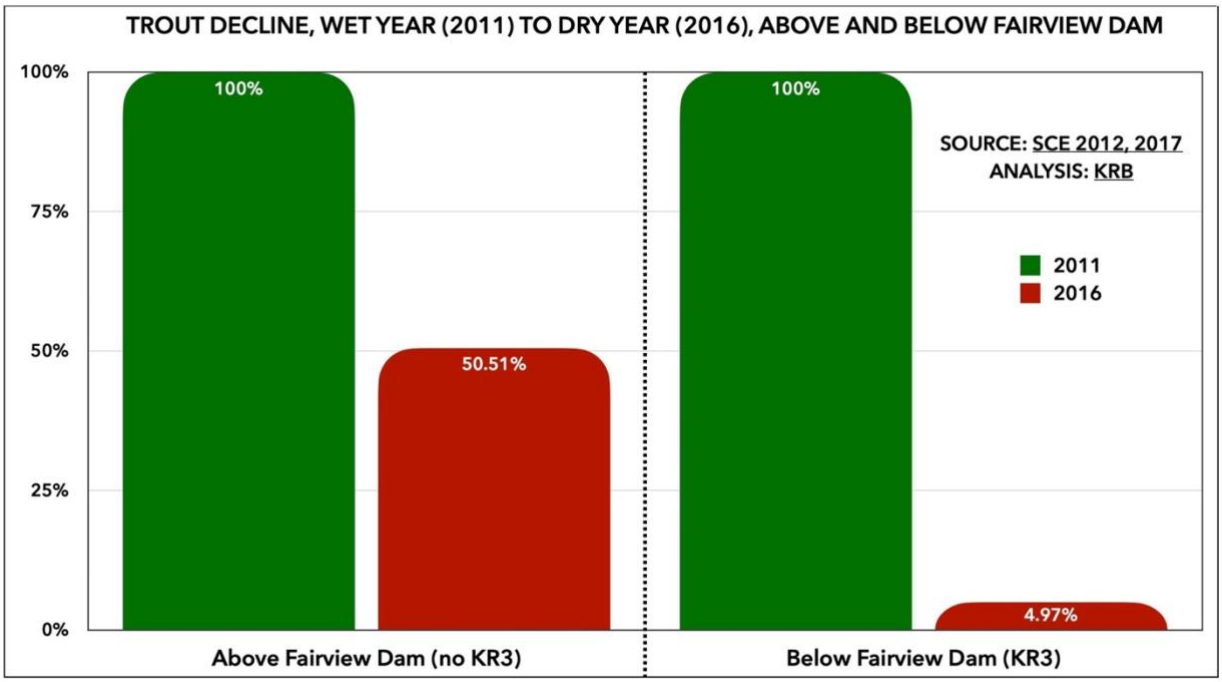
RESPONSE TO COMMENTS

EDISON: *Angling flows have not been raised as an issue, and KR3 is a run-of-river Project that has a variable flow regime.* (PSP at 30.)

KRB: Edison is not fairly characterizing the record:

(1) FERC has been in receipt of many formal comments indicating that fishing is unenjoyable in the dewatered reach for months.[178]

(2) Edison's 2016 fish monitoring study showed an incredible difference between the effect of the drought on trout above and below Fairview Dam: trout above the dam suffered a 50% reduction, while below suffered a 95% reduction. The inference is undeniable: project operations killed (almost) all the trout:



The Drought Killed about Half the Fish; Fairview Dam and KR3 Killed (Almost) All the Rest

It should be no surprise that anglers find this fishery unenjoyable.

(3) The most analytical member of the oldest fly-fishing club on the Kern — Mr. Rich Arner — has repeatedly opined *outside of this relicensing proceeding* that flows below 100 cfs are simply inadequate for enjoyable fishing, as flows that low lower pool depths, decrease water speeds, and increase predation:

[178] See, *e.g.*, FERC eLibrary Nos. 20220120-5089, 20220121-5040, 20220121-5004, 20220120-5168, 20220120-5099, 20220120-5007, 20220120-5006, 20220119-5018, 20220120-5001, 20220120-5002, 20220120-5028

Flows (50 cfs) are very low on section 5 below Fairview and there is lots of wadable water there, however, the extremely low flows have given natural predators a distinct advantage over unwary rainbows. (11/20/19.)

Also the low flow section has been dropped to just 45 cfs. That's nearly a trickle and natural predators are having easy pickings on trout that surface often and do not find good lies in deeper pools with cover. (11/07/19.)

Section 5 is flowing very low (just 85 cfs) and deeper hiding water is becoming less abundant. Dries not getting as many grabs. Shallower water is giving herons a distinct advantage in spotting unwary planters.
(10/22/19.)

We love section 5 to wade but flows have dropped down to just 86 cfs, above Fairview on section 6 flows are holding steady at 350 cfs. . . . There is a lot more moss in the river, especially on section 5 where water temps exceeded 70 degrees the last month of summer. This moss had larvae strewn in it. Did this lunker consume the moss to get at the aquatics insects or just dive into the moss containing larvae trying to evade landing? Who knows? (10/03/19.)

We hit a favorite spot on section 5 that should have been stocked last week. Water was very low and 50 degrees. We hit every spot that has held trout in the past with nary a tug nor rise. There was quite a bit of moss covering the river rocks (1/4 – 1/2" thick) that I can't say I've ever seen before. Made traction better but did not seem to provide more aquatic insect activity? Not sure what biologically is going on. It was pretty obvious to us that the water on section 5 is too low to sustain trout for long. If trout planted on much of this section weren't harvested by fishers it sure would be easy pickings for herons and hawks. There is very little holding water more than 3' deep with these very low flows around 50 cfs. We tried another social media posted spot further up river on section 5 to see if there were any trout left there but no trout tugs were procured. So up to section 6 where there has been some catching reported the last month. . . . We tried another often stocked area low on section 5 on the way home and covered a good 1/2 mile stretch with no grabs nor trout seen scooting. The water is just too low to hold trout for long. (11/8/18.)

> [F]lows between Fairview Dam and KR3 power generation station are just 50 cfs today. That's as low as we can remember. Any trout left (very few survived 80 degrees temps last summer) on that stretch are going to find it hard to avoid being taken by natural predation and other harvesters. (03/06/16.)[179]

(4) The agencies are now in possession of additional opinions from the Kern River Fly Fishing Club that flows on the NFKR are inadequate for angling, including a catch rate of 10% of what it used to be, a lack of desire to spend time and fish there due to inadequate flows, the flows making the river a shadow of what it once was, a steady decrease in fish population over the years, never fishing below the dam because there is not enough water, not fishing there anymore because of high water temperatures and the diversion of water to a hatchery that is closed, rarely fishing there because of inconsistent fish and flows, degraded conditions because of flows inadequate to sustain a trout fishery, fishing not being as good there in recent years due to excess algae and low flows, not fishing there because of no fish and low flows, recent degradation of conditions from murky warm water and algae, the recent depletion of trout to catch in the river, the river being unproductive due to slow pools and no fish, the degradation of the river over time from a Class A stream to a small stream due to the diversion, and increasingly poor fishing due to low water, temperature, and lack of fish.[180]

(5) Project operations radically decrease flows in the dewatered reach: natural flows at Fairview Dam fall below 125 cfs just 5% of the time, but project operations plunge flows under 125 cfs a whopping 44% of the time — a figure that would have been even larger had the project not been offline so much in the current term. Such substantial dewatering inarguably increases temperatures, lowers pool depths, constrains or eliminates riffles, and causes other phenomenon likely to decrease angler enjoyment.[181]

Edison also posits that the dewatered reach "has a variable flow regime." This "variable" regime only varies on six occasions during the course of each year. That does not mimic a natural hydrograph, does not provide adequate flows for fish survival, and has resulted in an unenjoyable fishery, as evinced above. Further, the minimum level of flow for enjoyable fishing has never been studied in the history of this project. Current Edison consultant John Gangemi is a listed author on the guide for conducting such studies: *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker 2005). The results of that study may dovetail with the results of other studies or information about enjoyable whitewater recreation, water quality, environmental flows, and aesthetics — all pointing to a substantial increase in minimum flows. Edison has a plain interest in not admitting there

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[179] http://www.kernriverflyfishers.com/fishreports.htm
[180] FERC eLibrary No. 20220531-5308
[181] KRB SD1 at 5-11 & 34-45

to be a problem or conducting any studies along these lines. But the managing agencies are charged by statute and management plans with pursuing the public interest, and they need to know what the minimum and optimum flows for angling are in this currently under-watered public resource. For these reasons, we ask that the Commission direct Edison to implement our updated enjoyable angling study request.

KRB SP-3: ENJOYABLE ANGLING FLOWS
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to evaluate the effect that project operations have on angler enjoyment of fishing in the 16-mile dewatered reach below Fairview Dam. The amount of water present in a fishery can significantly impact an angler's enjoyment of a fishing outing. This proposal focuses on situations where Edison's diversion of water from the North Fork Kern may leave a quantity of water in the riverbed that is so low as to render an angling outing for a typical person less than enjoyable.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

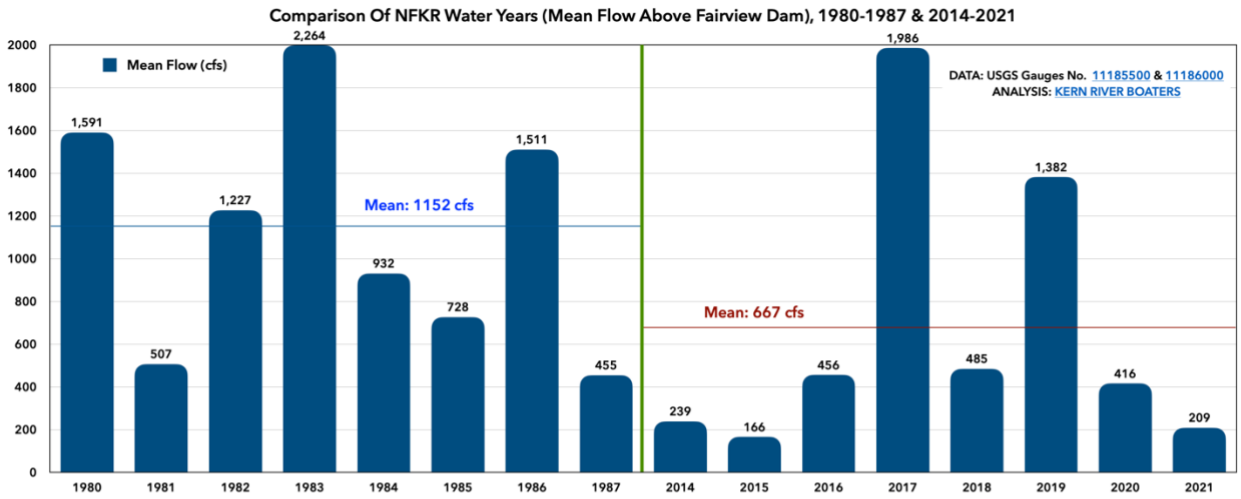
Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

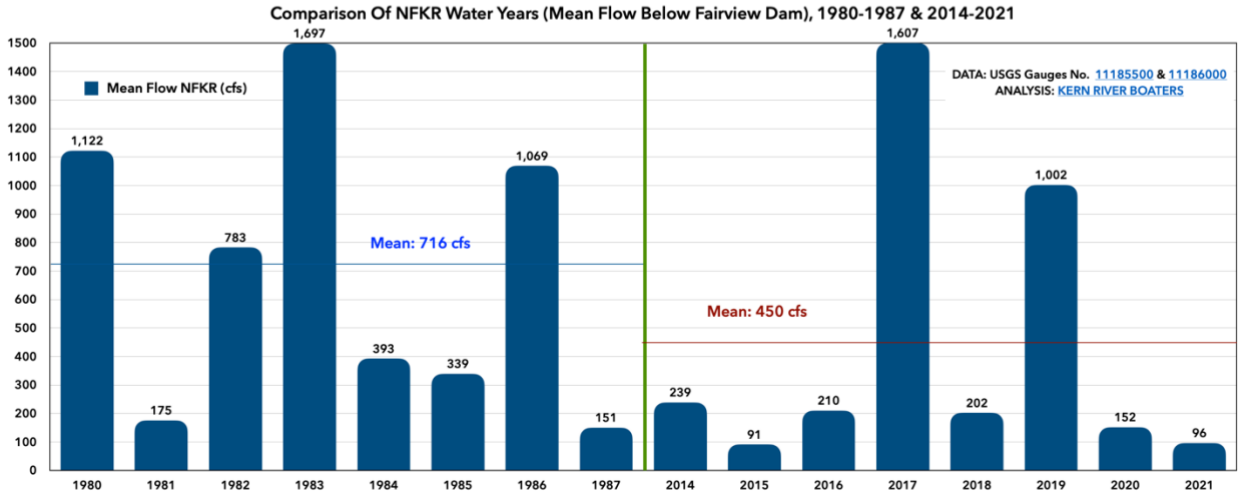
The Federal Energy Regulatory Commission is charged with giving equal consideration in this proceeding to the public goods of recreation and river health as it gives to the social utility of power generation. The Commission cannot afford equal consideration of without fully capturing and evaluating the losses generation causes to recreation. One of those losses inadequate flows for enjoyable fishing in the dewatered reach.

The United States Forest Service is charged under Section 4(e) the Federal Power Act with establishing in any FERC license issued those conditions required for the enjoyment of public lands. USFS cannot understand what is required with regards to fishing recreation on the North Fork Kern without understanding when flows are too low for a quality fishing experience. The North Fork Kern is popular as a fishery. If anglers are avoiding the dewatered reach of that river for lack of water when running at minimum instream flow levels, the public interest in forest enjoyment is being injured by the project. Properly establishing the flow level at which angler enjoyment decreases can enable managing agencies to mitigate the injury.

USFS is also responsible under Section 7 of the Wild and Scenic River Act with evaluating whether a proposed license renewal for KR3 would cause any direct and adverse consequences on the outstanding resource values provided by the North Fork Kern. This study would help address the information-gathering obligation raised by complaints about angling on the North Fork Kern. USFS should want to adequate information on which to determine whether any new license for the project directly and adversely impacts the fishery. And to be clear, recreational fishing is an outstanding resource value identified by USFS in its Wild and Scenic environmental analysis, record of decision-making, and management plan for the dewatered reach of the North Fork Kern (called "Segment 4" in those documents): The 1994 FEIS sates, "The outstandingly remarkable values for Segment 4 include fishing, camping, picnicking, Whitewater boating, hiking, driving for pleasure, and enjoying the scenic beauty."[182] The 1994 ROD states, "Segment 4, was identified as possessing outstandingly remarkable recreational values because of the variety of opportunities it offers to a vast majority of citizens who live within a short distance of this major river (3-4 hours driving distance from the Southern California basin)."[183] The 1994 Plan directs USFS to "maintain or enhance viable populations of native wildlife and fish species," conduct an "active program of stream habitat improvement," maintain a "riffle to pool ratio [of] approximately 1:1," and manage the area to "maintain or achieve adequate user safety and experience levels."[184] As far back as the 1982 FEIS, USFS stated that designation of all segments — including segment 4 — "will ensure that [it] continue to provide a riverine (free-flowing) type of fishery."[185] Finally, flows back at the time of designation were higher than those experienced presently, and the agencies need to know flow levels for enjoyable angling to re-establish the outstanding angling values that led to this segment's designation:

[182] 1994 USFS N&SFKR W&SR FEIS at "Affected Environment" 61 [.pdf 113]
[183] 1994 USFS N&SFKR W&SR ROD&CMP at ROD 10
[184] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 24, 48-49
[185] 1982 USFS NFK W&SR FEIS at 57





Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

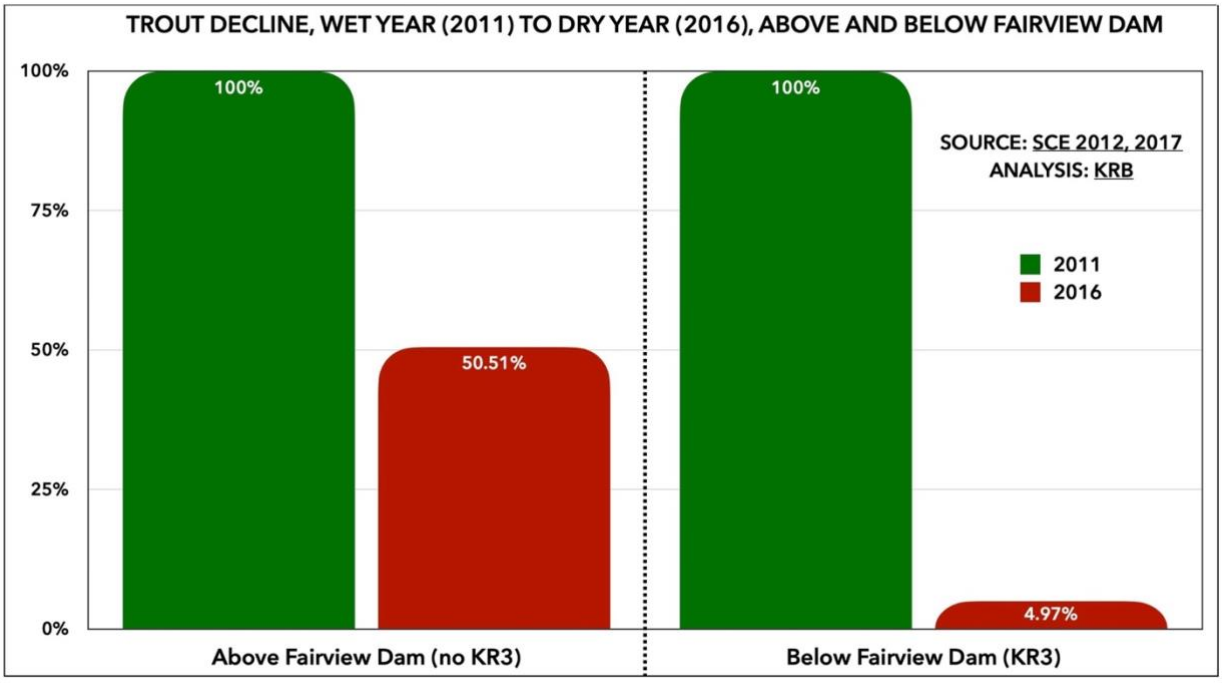
Edison does not describe the quality of angling experiences at minimum instream flow levels.

There has never been an "angler study" consistent with the contemporary methodology established by Whittaker, *et al.*, *Flows and Recreation: A Guide to Studies for River Professionals* (2005). The need for one is demonstrated by the following:

(1) FERC has been in receipt of many formal comments indicating that fishing is unenjoyable in the dewatered reach for months.[186]

[186] See, *e.g.*, FERC eLibrary Nos. 20220120-5089, 20220121-5040, 20220121-5004, 20220120-5168, 20220120-5099, 20220120-5007, 20220120-5006, 20220119-5018, 20220120-5001, 20220120-5002, 20220120-5028

(2) Edison's 2016 fish monitoring study showed an incredible difference between the effect of the drought on trout above and below Fairview Dam: trout above the dam suffered a 50% reduction, while below suffered a 95% reduction. The inference is undeniable: project operations killed (almost) all the trout:



The Drought Killed about Half the Fish; Fairview Dam and KR3 Killed (Almost) All the Rest

It should be no surprise that anglers find this fishery unenjoyable.

(3) The most analytical member of the oldest fly-fishing club on the Kern — Mr. Rich Arner — has repeatedly opined *outside of this relicensing proceeding* that flows below 100 cfs are simply inadequate for enjoyable fishing, as flows that low lower pool depths, decrease water speeds, and increase predation:

> Flows (50 cfs) are very low on section 5 below Fairview and there is lots of wadable water there, however, the extremely low flows have given natural predators a distinct advantage over unwary rainbows. (11/20/19.)
>
> Also the low flow section has been dropped to just 45 cfs. That's nearly a trickle and natural predators are having easy pickings on trout that surface often and do not find good lies in deeper pools with cover. (11/07/19.)
>
> Section 5 is flowing very low (just 85 cfs) and deeper hiding water is becoming less abundant. Dries not getting as many grabs. Shallower water is giving herons a distinct advantage in spotting unwary planters.
> (10/22/19.)

> We love section 5 to wade but flows have dropped down to just 86 cfs, above Fairview on section 6 flows are holding steady at 350 cfs. . . . There is a lot more moss in the river, especially on section 5 where water temps exceeded 70 degrees the last month of summer. This moss had larvae strewn in it. Did this lunker consume the moss to get at the aquatics insects or just dive into the moss containing larvae trying to evade landing? Who knows? (10/03/19.)
>
> We hit a favorite spot on section 5 that should have been stocked last week. Water was very low and 50 degrees. We hit every spot that has held trout in the past with nary a tug nor rise. There was quite a bit of moss covering the river rocks (1/4 – 1/2" thick) that I can't say I've ever seen before. Made traction better but did not seem to provide more aquatic insect activity? Not sure what biologically is going on. It was pretty obvious to us that the water on section 5 is too low to sustain trout for long. If trout planted on much of this section weren't harvested by fishers it sure would be easy pickings for herons and hawks. There is very little holding water more than 3' deep with these very low flows around 50 cfs. We tried another social media posted spot further up river on section 5 to see if there were any trout left there but no trout tugs were procured. So up to section 6 where there has been some catching reported the last month. . . . We tried another often stocked area low on section 5 on the way home and covered a good 1/2 mile stretch with no grabs nor trout seen scooting. The water is just too low to hold trout for long. (11/8/18.)
>
> [F]lows between Fairview Dam and KR3 power generation station are just 50 cfs today. That's as low as we can remember. Any trout left (very few survived 80 degrees temps last summer) on that stretch are going to find it hard to avoid being taken by natural predation and other harvesters. (03/06/16.)[187]

(4) The agencies are now in possession of additional opinions from the Kern River Fly Fishing Club that flows on the NFKR are inadequate for angling, including a catch rate of 10% of what it used to be, a lack of desire to spend time and fish there due to inadequate flows, the flows making the river a shadow of what it once was, a steady decrease in fish population over the years, never fishing below the dam because there is not enough water, not fishing there anymore because of high water temperatures and the diversion of water to

[187] http://www.kernriverflyfishers.com/fishreports.htm

a hatchery that is closed, rarely fishing there because of inconsistent fish and flows, degraded conditions because of flows inadequate to sustain a trout fishery, fishing not being as good there in recent years due to excess algae and low flows, not fishing there because of no fish and low flows, recent degradation of conditions from murky warm water and algae, the recent depletion of trout to catch in the river, the river being unproductive due to slow pools and no fish, the degradation of the river over time from a Class A stream to a small stream due to the diversion, and increasingly poor fishing due to low water, temperature, and lack of fish.[188]

(5) Project operations radically decrease flows in the dewatered reach: natural flows at Fairview Dam fall below 125 cfs just 5% of the time, but project operations plunge flows under 125 cfs a whopping 44% of the time — a figure that would have been even larger had the project not been offline so much in the current term. Such substantial dewatering inarguably increases temperatures, lowers pool depths, constrains or eliminates riffles, and causes other phenomenon likely to decrease angler enjoyment.[189]

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

After accounting for minimum instream flows between 40 cfs (four months) and 130 cfs (two months), the Kern River No. 3 hydroproject is authorized to divert the next 605 cfs from the riverbed. Over the POR for this license, the average daily flow above Fairview Dam fell below 100 cfs just 151 days out of 8,766 — about 1.7% of the time. During the same period, the average daily flow in the dewatered reach below the dam fell short of 100 cfs on 2,790 days — about 31.8% of the time. The project turns exceedingly improbable low flow levels into a typical occurrence, impacting the fishery and angler enjoyment of it. As stated by USFS, "the greatest impacts on fish habitat come from livestock grazing *and water diversion*."[190] (Italics added.)

The requested study would inform the questions of when flows are too low for an enjoyable angling experience and what level of enjoyment exists at different flow levels, thus helping managing agencies understand the full extent of project effects and provide them a basis upon which to gauge mitigation project effects with updated minimum instream flow requirements. The results may also dovetail with information about aesthetically pleasing minimum flows, environmentally sound minimum flows for riparian habitat, water quality minimum flows, and other vectors indicating that the current MIF regime should be reformulated.

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[188] FERC eLibrary No. 20220531-5308
[189] KRB SD1 at 5-11 & 34-45
[190] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 48

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Basic Methodology: Desktop studies to the extent feasible, followed by on-water, targeted flow studies. The quality of angling experiences should be studied at several incremental levels of flow below Fairview Dam: we propose 100, 150, 200 & 300 cfs, but the final targets can await the conclusion of the level 1 and 2 components. The study should employ anglers with varying levels of skill, technique, and expertise. Study participants should rate their experiences at different flow levels to evaluate how future project operations can better meet public recreation needs. Details on methodology would be consistent with Whittaker, "Flows and Recreation" (2005). Edison maintains a significant ability to shape flows below Fairview Dam for these purposes. Based on available data, there appear to be a vast inventory of days at which various flow levels in the riverbed can be obtained — more than three months of days at each level, including more than half the year at flows below 225 cfs[191]:

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
100	124	6529	261
125	149	6311	252
150	174	5659	226
175	199	4987	199
200	224	4634	185
225	249	4247	170
250	274	3878	155
275	299	3489	140
300	324	3140	126
325	349	2853	114
350	374	2536	101
375	399	2266	91

[191] Spreadsheet available: https://www.kernriverboaters.com/s/KRB_KR3_SHAPE_FLOWS.xlsx

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The level and effort of cost, estimated at $40,000 to $60,000, is commensurate with the protected status of the North Fork Kern and the public interest in it as a source of angling. Only an evaluation of minimum flow scenarios can effectively determine whether large inventories of enjoyable angling days are lost to project operations. The cost is justified by the statutory duty of the managing agencies to balance and adapt the proposed license to mitigate the effects of the project on this outstanding recreational public resource. There is no proposed alternative study.

KRB STUDY REQUEST 4: ***Conveyance, Forebay, and Penstock Safety***

RESPONSE TO COMMENTS

EDISON: *Project facility safety is an ongoing process addressed outside of the relicensing process and any changes related to Project safety would be addressed as they occur. FERC has regularly reviewed and confirmed that the Kern River No.3 Project has a rating of "low hazard." Dams assigned low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.*
Per FERC regulations, the Project infrastructure is subject to inspections and FERC safety reviews. FERC routinely performs safety inspections at Fairview Dam/Intake, Flume/Sandbox, Salmon and Corral Creek Diversions, conveyance flowline, forebay, penstocks, and the powerhouse. The most recent inspection dated July 24, 2017, stated "The project features inspected and described herein were observed to be in satisfactory condition for continued operation." (PSP at 30.)
KRB: Edison neglects to point out that, like KR3, sister project Kern River No. 1 ("KR1") was the recipient of a "low hazard" rating prior to its catastrophic failure in 2013. KR1 had been subject to the same rubric of regulation and inspection Edison cites, yet it still failed catastrophically. FERC implicitly conceded its "low hazard" rating for KR1 was *wrong* when it increased that rating to "significant" following the two landslides it caused across a major highway, which fortunately only involved a 10-day full road closure and not a loss of lives. The Commission has acknowledged that independent engineering evaluations of project safety can be appropriate as a check on both internal bias and regulatory malaise, and as booster of public confidence as well.[192] We are asking at this time that the Commission require Edison to obtain an independent engineering firm to re-evaluate the current hazard rating for KR3 — based on its present configuration and condition, and knowing what we know now about KR1 — in order to properly inform the terms of any new license it issues and assuage public concerns. Images like those recently obtained (see *post,* THIS PROPOSAL) and the brief video shown here[193] do not inspire public confidence in the safety of this old project. This is the last time over the next 40 years the public can request FERC to direct an independent study of the risks this project poses to public safety, and we are asking for that now. For these reasons, we ask the Commission to direct Edison to implement our updated project safety study proposal.

[192] See 18 CFR Part 12, Subpart D
[193] https://vimeo.com/kernriver/siphon

KRB SR-4: CONVEYANCE, FOREBAY, AND PENSTOCK SAFETY
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to describe and evaluate the potential safety risks of project operations to life, property, and infrastructure in the area that lies below the penstocks, forebay, and elevated conveyance near the powerhouse of the project, and to evaluate potential measures to prevent or minimize those risks. The study would be accomplished by an independent engineering firm.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by statute to ensure its licensed projects do not threaten persons and property. Project safety is a top priority of all managing agencies. The Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California. It is served by Highway 99, a state road that parallels that river and passes beneath the project's penstocks, forebay, and the final elevated portion of its conveyance about two miles north of Kernville. To fully evaluate the risks these assets pose to the public interest — life, property, and infrastructure — as well as to mitigate those risks, an independent engineering study is in order.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The PAD does not use the word "risk" or "safety" in reference to the project's penstocks, forebay, or final elevated conveyance. The PAD does not characterize or consider any risk to life or property posed by those assets.

Additional information is required due to the configuration of the project, which is substantially similar to sister project Kern River No. 1 ("KR1," P-1930). In 2013, KR1, which had a "low" hazard rating, failed catastrophically, causing two landslides across SR 178, closing the highway (the main artery in and out of the Kern River Valley) in both directions for 10 days. KR3 carries *50% more* water at elevation than KR1, also threatening a highway below (M99). The Commission implicitly conceded it had misread the threat posed by KR1 when it elevated its hazard rating from low to significant following the 2013 landslides.

This study proposes to obtain an independent evaluation of whether the Commission has been wrong about this project's hazard rating.

KRB has obtained this brief video[194] of the project's pressurized siphon, which is significantly cracked and leaking. An image therefrom:

[194] https://vimeo.com/kernriver/siphon

KRB has also obtained the following pictures depicting the recent condition of a small subset of the project conveyance above M99:

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project diverts 600 cfs at Fairview Dam and supplemental flows at Salmon and Corral creeks.[195] The "maximum conduit limit" is 620 cfs.[196] That amounts to 278,256 gallons or 2,309,524 pounds of water passing through project assets per minute. (One cubic foot amounts to 7.48 gallons, and one gallon of water weighs 8.3 pounds.) The forebay sits

[195] PAD at 4-5 & 4-6
[196] See 1996 EA at 5

821 feet above the powerhouse.[197] If there were a catastrophic failure of these elevated assets not confined to the spillway, the project would deluge the hillside as well as Mountain 99 and any traffic thereon. This study would inform the license's provision of project safety conditions.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The study would involve desktop methods and a site visit, if needed. The study should examine the threat posed by the project through the lens of the catastrophic failure that occurred at KR3's sister project — Kern River No. 1 (FERC Project No. P-1930, "KR1") — on August 19, 2013.[198] That day, a summer storm set loose water and debris that penetrated the project's conveyance and clogged its penstocks and emergency spillway. Water crested the forebay and deluged the mountainside below, "severely" eroding it (FERC 2013) and causing a landslide that closed Highway 178 — the Kern River Valley's primary artery — in both directions for ten days. Unable to immediately apprehend the situation or travel to the project, Edison continued diverting water to the forebay throughout the event. As a result of this incident, the Commission increased the hazard rating for the project from "low" to "significant."[199]

The risks inherent in KR3 should be studied through the lens of the KR1 incident because many of the same risk factors apply. Like KR1, KR3 conveys a large volume of moving water (again, 2,309,524 pounds per minute) at elevated levels above a highway. Mountain 99 is not travelled as much as Highway 178, but that would not matter to vehicles and passengers who happened to be on it during catastrophic landslide. Moreover, KR3 conveys 50% more water than KR1.[200] Finally, the elevated assets of KR3 at issue are less than two miles from a major fault.[201] FERC and its projects have commissioned independent engineering studies of risk in the past, and one is in order for this project.

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[197] PAD at 5-213

[198] See Lois Henry, "Mother Nature got help shutting down Hwy 178," Bakersfield Californian, March 29, 2014, at https://www.bakersfield.com/columnists/lois_henry/lois-henry-mother-nature-got-help-shutting-down-hwy-178/article_2378aaf7-7ab2-594a-97ec-4091ce4d1ddc.html

[199] FERC eLibrary Nos. 20131007-0307, 20131104-5010 & 20140325-0159

[200] PAD at 3-7

[201] See: https://pubs.geoscienceworld.org/gsa/geosphere/article/8/3/581/132511/Map-of-the-late-Quaternary-active-Kern-Canyon-and

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The cost for an independent engineering study should be an estimated $20,000 to $30,000. Again, desktop methods and potentially a site visit should suffice upon the receipt of technical descriptions of the elevated assets from Edison. There is no alternative study proposed.

KRB STUDY REQUEST 5: *Flow Travel Times*

RESPONSE TO COMMENTS

EDISON: *WR-2 Hydrology has been modified to include an analysis of flow travel times between Fairview Dam and the KR3 Powerhouse. Travel times will be estimated utilizing existing gage data and incorporated as part of the final Technical Memo.* (PSP at 21.)
KRB: Edison does not clearly state it will be determining flow travel times between Fairview Dam and the powerhouse for both (1) flows in its conveyance and (2) flows in the dewatered reach. Both of these times are needed to fully understand project effects and evaluate potential opportunities and constraints for PMEs, such as alignment with expected times of renewable curtailment and/or low and negative market pricing for electricity.[202] There is no reason to "estimate" travel times for these important uses; travel times can be conclusively determined with the use of two or three gauges: a gauge just past the diversion point and a gauge at the forebay (for conveyance times), and a gauge just upriver of the tailrace along with use of the existing gauge in the riverbed just below Fairview Dam (for riverbed times). Alternatively, a logging of energy output could directly correlate timing at the forebay, removing the need for a gauge there. For these reasons, and those others described in the request, we ask that the Commission direct Edison to implement our updated flow timing study.

KRB SR-5: FLOW TRAVEL TIMES
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to evaluate the amounts of time certain flows take to travel from the project's diversion point to its powerhouse, both through its conveyance and through the dewatered reach, the results of which may constrain or afford opportunities for plausible environmental or recreational mitigation measures.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

[202] See KRB SD1 at 11-22

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including recreational and environmental values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including recreation. The results of this study may further the managing agencies' goals by providing solid data about constraints and opportunities the project's configuration affords for environmental and recreational mitigation. For instance, recreational flow releases, which lower the ability of the project to generate power, may be able to be coordinated in substantial respect with predictable times of day, days of the week, or months in the year when energy markets are likely to signal low or negative needs for marginal power.[203] Such coordination will require information about how long it takes for the water to travel the conveyance (to evaluate at what time changes in the diversion affect the timing of the project's power production) and the dewatered reach (to evaluate the recreational opportunities afforded by changes in the diversion).

The dewatered reach of the Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California, and attracts significant numbers of visitors for camping, hiking, fishing, whitewater, and other forms of recreation throughout the year. It also has inherently outstanding recreational values that are to be conserved and enhanced under governing management plans.[204] The amount of time flows take to reach the powerhouse through the project's conveyance and through the dewatered reach may constrain or afford opportunities for conservation and enhancement mitigation in the public interest. Since the managing agencies are charged with mitigating the project's effects in balance with society's need for power, it is important to know if and when there are opportunities for the mitigation of those effects that coincide with times society has a relatively low need for power. A controlled-flow timing study would accordingly serve the public interest in designing a license that best serves this public resource.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The PAD does not describe the amount of time flows or flow changes at the diversion take to arrive at the project powerhouse by either its relatively direct concrete conveyance or the relatively meandering natural riverbed it affects.

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[203] See KRB SD1 at 11-22

[204] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 46-47

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project presently takes the first 40-45 cfs of incoming flows at the Fairview diversion dam for minimum power generation, and then, after the seasonally varying minimum instream flow requirement is satisfied, takes the next 600 cfs. These conditions leave only 40-130 cfs, or less, in the dewatered reach when incoming flows are below 640 and 770 cfs, and decreases all incoming flows above 640 and 770 cfs by 600 cfs. The project accordingly has a major effects on recreation in the dewatered reach throughout the year. The proposed controlled-flow timing study would be used to develop timing requirements of recreational or ecological releases to as part of the license requirements.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The study would involve flow gauges at the diversion point and timed releases of several different quantities of water. Two different sets of timings need to be collected: 1) time required for water to move through its conveyance until it reaches the powerhouse, and 2) time required for water to move through the dewatered reach of the NF Kern. This can be accomplished with the use of a gauge at the diversion point, at the forebay, and just upriver of the tailrace, along with the existing gauge in the riverbed just below Fairview Dam. Alternatively, a simple logging of energy output could directly correlate timing at the forebay. Edison, moreover, retains the capacity to significantly shape flows in the riverbed and its conveyance to obtain this data.[205]

Part 1: Time required in conveyance

Sensors do already exist at "the penstocks [which] are equipped with electronic flowmeters for the determination of the amount of waterflow" (SCE, 1991). Where not already present, flow gauges should be placed at the diversion point at Fairview dam, at the generators or penstock valves. Using these sensors, change the diversion from 0 cfs to each flow volume as specified (and according to ramping maximum constraints), and record the time required for the specified flow to reach the point of power generation. Optionally, also record the power generated itself (MW) and measure time required to corresponding power generation if there are any further time delays or requirements.

[205] See *post,* KRB STUDY REQUEST 8: Whitewater Flows, at "Comments and Response"

Flow volume (cfs)	Time required for water passage through conveyance from diversion point to power generation point (minutes)	Time required from water diversion to power generation (minutes)
100		
200		
300		
400		
500		
600		

Part 2: Time required in river channel

Where not already present, flow gauges should be placed at the diversion point at Fairview dam, and in NF Kern River at the Powerhouse above the powerhouse discharge to capture the flows in the river at that point. Using these sensors, change the diversion to release each flow volume specified into the river channel, and record the time required for the specified flow to reach the Powerhouse via the river channel. Since these times will differ based on how much water is in the river, evaluate the speed at various incoming flow levels.

	Time required for water passage through river channel from diversion point to Powerhouse (minutes)			
Flow volume released (cfs)	Incoming flow above Fairview is 100 cfs	Incoming flow above Fairview is 500 cfs	Incoming flow above Fairview is 1000 cfs	Incoming flow above Fairview is 1500 cfs
100				
200				
300				
400				
500				
600				

Where data is already recorded and available, it could be provided in lieu of re-measurement. Report and share all results with stakeholders.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The cost for this internal study should be an estimated $15,000 based on the use and recording of three gauges, less if energy correlation is used at the endpoint. The controlled flow portion of the study would not amount to an out-of-pocket cost to Edison; it would be lost generation opportunity in service of designing a license for vastly more generation (40

years of such) that is best adapted to the affected resource and its users. Edison's proposed alternative is inadequate in that it does not plainly state (1) that it will measure flow travel times in both the river and its conveyance, (2) that it will measure flow travel times at different changes in flow level, and (3) that it will identify these times according to the best science available rather than estimate them.

References

NPS. (2012) Historic American Engineering Record Kern River 3 Hydroelectric System: Written Historical and Descriptive Data. HAER No. CA-2309.

SCE. (1991) Kern River No. 3 Water Power Project (FERC Project No. 2290) Application for New License for Major Project – Existing Dam. Volume 1 of 5: Initial Statement; Exhibits A, B, C, D, F, G, H; and Appendices. United States of America Before the Federal Energy Regulatory Commission. December 1991.

SCE. (2021) Southern California Edison Kern River No. 3 Hydroelectric Project (FERC Project No. 2290), Pre- Application Document. Volume 1. September 2021.

KRB STUDY REQUEST 6: *Tunnel Maintenance Flow*

RESPONSE TO COMMENTS

Our updated study proposal, which follows, reflects the comments we make above in response to Edison's proposed OPS-1 study, and we incorporate those here by reference.[206] For the reasons stated there, along with those contained herein, we ask that the Commission direct Edison to implement this updated tunnel flow study plan.

KRB SR-6: TUNNEL MAINTENECE FLOWS
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to evaluate the effect that increasing and decreasing the quantity of water diverted at Fairview Dam — and thereby, increasing or decreasing the quantity of water conveyed through the project's tunnels — for purposes of whitewater mitigation has over and above the baseline rate of damage incurred by the tunnel liner due to naturally occurring variations in tunnel flow (annual, seasonal, and daily diurnal) and the nature of the material used to line the tunnel walls — namely, concrete — the results of which may constrain or afford opportunities for recreational mitigation measures.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including recreational and environmental values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including whitewater recreation. The results of this study may further the managing agencies' goals by providing solid data about constraints and opportunities the project's configuration affords for recreational mitigation. At present, recreational mitigation is capped at a maximum of 300 cfs (less if

[206] See *ante* at 42

the tunnel is not full) due to a purported tunnel maintenance flow. This study seeks to determine whether there is a scientific basis for that cap.

The dewatered reach of the Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California and is Southern California's primary resource for whitewater recreation of all kinds — whether by paddle raft, oar raft, open canoe, splashyak, shredder, hardshell kayak, stand up paddleboard, riverboard, or innertube. The dewatered stretch has inherently outstanding recreational values that are to be conserved and enhanced under governing management plans.[207] Whether recreational mitigation should be capped at 300 cfs because of project effects rather than provided in some greater amount (up to 600 cfs) is a pressing issue for both the managing agencies and the public, and it is one that should be informed by science, not assertions. A study into whether the effects of tunnel watering and dewatering merit capping recreational mitigation at 300 cfs or whether those effects are more marginal than Edison asserts, providing for increased mitigation, would accordingly serve the public interest in designing a license best adapted to this public resource.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The current rec flow schedule limits the benefit of a recreational release (rec day) for whitewater boating to 300 additional cfs, maximum, out of the 600 cfs Edison diverts from incoming flows at Fairview Dam. The rationale for this limitation was founded upon a purported "SCE study" that showed "the removal of water from the [KR3 diversion's conveyance] tunnel for whitewater boating on a regular basis will create greater and more frequent damage to the tunnel liner."[208]

From the earliest stage in this proceeding, stakeholders have asked to see this study. Stakeholders — including stakeholders who have already been qualified by FERC to view CEII — continued asking to see this study throughout the TWG process. John Gangemi, who was American Whitewater's signatory to the 2002 recreation settlement and who has subsequently switched sides, could not recall ever seeing this study.[209] Current AW lead Theresa Simsiman looked for the study in AW's records and could not find it and has never seen it.[210] At the December 09, 2020 TWG meeting, David Moore said Edison would look for the study. At the April 29, 2021 TWG meeting, Moore said Edison could not find and did not have this study. So no person outside of Edison has ever seen this study, if it existed. And no current Edison employee has ever seen it.

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[207] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 46-47
[208] 2002 Whitewater Settlement, Rationale at 2
[209] 09DEC2020 TWG meeting
[210] 01DEC2021 American Whitewater meeting

The purported study's conclusion that 300 cfs is required to remain in the tunnel during rec days to prevent damage is controversial. Why is the required level for tunnel "integrity" 300 cfs instead of 250, or 200, or 150, or 100, or 50? Is the reason that 300 cfs is half of what Edison can divert, thereby strictly limiting the economic downside of mitigation? Is the reason that 300 cfs is the lowest quantity at which Edison can operate *both* of KR3's turbines?[211] Absent a scientific case for the selection *of that number, 300,* the number will continue to appear to be based on factors far afield of tunnel integrity. Indeed, Edison does not choose to limit its diversion to steady levels when the diurnal naturally results in a cycling of tunnel flows below 300 cfs; it only moves to "protect" the tunnels when mitigation comes into play. Absent the claims of recreation, Edison takes all the water it can get out of the river regardless of the diurnal's cycling effects on its tunnels and accepts those effects as a cost of doing business. There is also no evidence that liner damage isn't simply in the nature of transporting water over concrete. This proposed study seeks to take the place of the never-seen Edison study that animates the current 300 cfs mitigation cap. Finally, Edison indicates in the PAD that water does not crest the tunnel liner: "The tunnel segments [are] 8 feet high. . . . Water flow in the tunnel does not achieve a depth of greater than 7.5 feet, making lining of the arched ceiling unnecessary."[212] Edison also spent 16 months rehabilitating the tunnel liner in 2013-2014 to "improve" its integrity.[213] These

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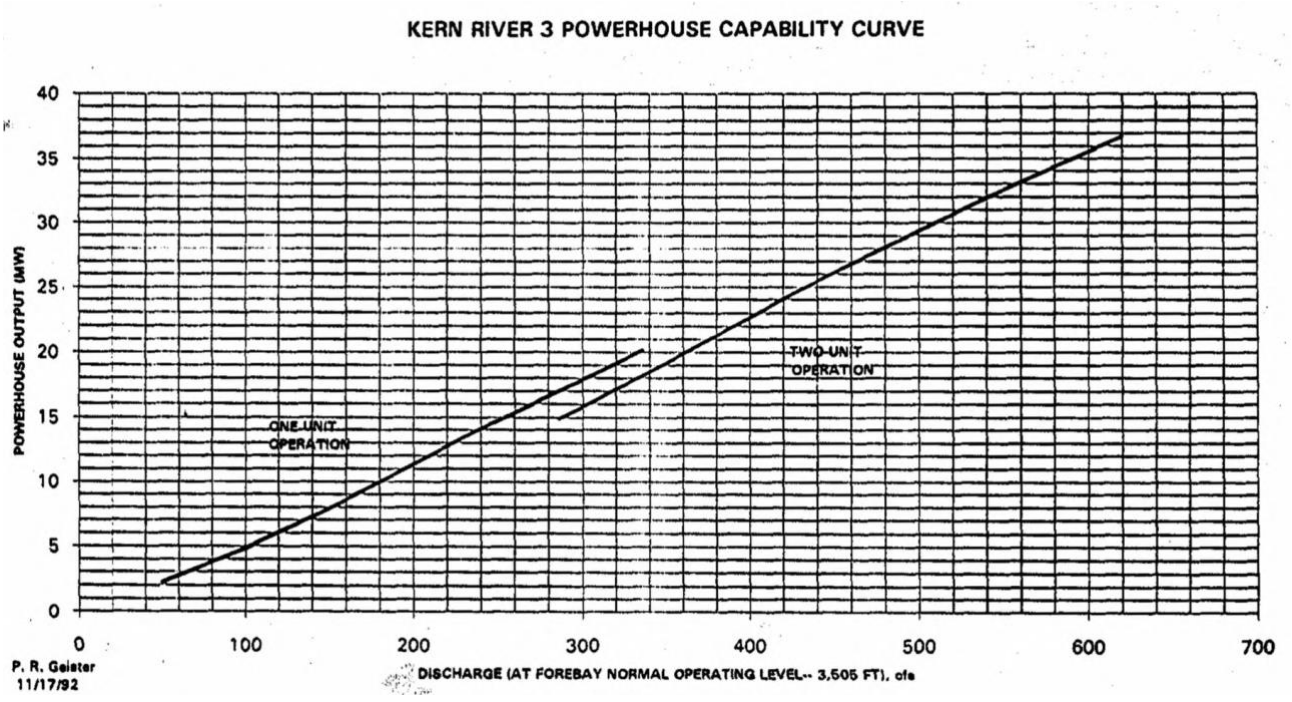
[211] See FERC eLibrary No. 19930127-0376 at image 30 ["Kern River 3 Powerhouse Capability Curve"]:



[212] PAD at 4-7

[213] FERC eLibrary No. 20130806-5052 at 3

facts call into question (1) whether the original tunnel maintenance study continues to apply and (2) whether Edison had the opportunity to modernize the tunnel liner, but chose not to.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project presently takes the first 40-45 cfs of incoming flows at the Fairview diversion dam for minimum power generation, and then, after the seasonally varying minimum instream flow requirement is satisfied, takes the next 600 cfs. These conditions leave only 40-130 cfs or less in the dewatered reach when incoming flows are below 640 and 770 cfs, and decreases all incoming flows above 640 and 770 cfs by 600 cfs. The project accordingly has a major effect on recreation in the dewatered reach throughout the year. The results of this study will help to define the limits of project operation in order to inform a more equitable management plan in the license.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Given the facts that (1) the tunnel maintenance flow serves Edison's primary interest in the project by significantly limiting the amount of hydrological mitigation it can provide for recreation and (2) Edison has announced its desired conclusion of this study — namely, to validate the existing regime, and nothing else — it is unreasonable to expect Edison's own engineers to conduct this study without bias. The public simply cannot be confident in a result here unless an independent engineering firm conducts it; Edison's self-interest in the outcome is too great, and a clear conflict of interest exists. The Commission has conceded that in situations where a generator's interest in a certain engineering result is too great to ignore, an independent engineering evaluation is called for.[214] We ask that the Commission reject this study request absent a requirement that it be conducted by an independent engineering firm selected in conjunction with the stakeholders.

Next, the study should not simply attempt to validate the current regime. Transporting water over concrete inevitably damages the concrete, as recent pictures of the project's conveyance confirm.[215] There is thus some rate of damage to the concrete tunnel liners inherent in project operations absent any hydrologic mitigation. The relevant

[214] See FERC eLibrary No. 20220406-3072 at 1-2

[215] See *ante,* at KRB STUDY REQUEST 4: *Conveyance, Forebay, and Penstock Safety*

question for this study to answer is what additional damage attends mitigation? The study should accordingly not simply provide an up-or-down thumb on the current 300 cfs regime. It should instead report on the rates of damage under various mitigation schemes, including one that provides for full natural flows (*i.e.*, a complete cycling that empties the conveyance), one that reflects the current 300 cfs cap (*i.e.*, cycling of all but 300 cfs from the tunnels), and other levels in between (*e.g.*, the cycling of all but 50, 100, 150, 200 & 250 cfs from the tunnels).

Finally, Edison's position is that it cannot provide more than 0-300 cfs in hydrologic mitigation at any time (whatever is in the tunnel minus 300 cfs) due to the configuration of its project. The study should investigate whether there are alternate tunnel configurations (*e.g.*, different sealants, concrete formulations, or types of liner material) that would mitigate damage from mitigation cycling and what the costs of those materials would be. Edison shut the project down for 16 months in 2013-2014 to complete, among other things, a "Tunnel Rehabilitation Project."[216] One aspect of the tunnel project was to "improve the structural integrity" of the tunnels.[217] Edison does not indicate whether it chose to use superior materials for this project.[218] Given the congressional mandate to mitigate recreational losses from project operations that dates back to the mid-1980s, the study should inquire into what steps Edison took during its tunnel rehabilitation project to improve the structural integrity of the tunnels so that recreational flows of more than 0-300 cfs could be afforded the public as mitigation for project operations or, if it did not take any such steps, why not. Edison should not be allowed to avoid adequate statutory mitigation consistent with contemporary values simply because it has chosen to construct and rehabilitate its project in a manner that breaks if that mitigation is provided.

In sum, an independent engineering firm would be asked to evaluate:

> (1) the "natural" rate of damage expected to be incurred by the project's tunnel liners as it conveys water through the project, given (a) the tunnel's physical configuration and (b) naturally varying flows (operational flow analysis of hourly historical variances);

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[216] See FERC eLibrary No. 20130620-4015. Edison improperly filed its entire application for that project as CEII because, as Edison later conceded, "only certain pages contained CEII." (FERC eLibrary No. 20130806-5052 at 3.) Edison informed FERC it would "appropriately segregate the public and CEII" portions and "resubmit the Applications" for public inspection. (*Id.*, at fn. 6.) KRB does not see any such resubmission in the FERC eLibrary.

[217] FERC eLibrary No. 20130620-4015 at 3

[218] See, *e.g.*, https://www.bestmaterials.com/PDF_Files/concrete-repair-guide-usbr.pdf & https://nebula.wsimg.com/6d22154a2504a248dbd4457c6e6e20f9?AccessKeyId=8174FC00049DDC86865D&disposition=0&alloworigin=1

(2) the "additional" rate of damage expected to be incurred by the cycling of all but the specified "maintenance quantities" of water to be left in the tunnel during rec releases (*e.g.*, 50, 100, 150, 200, 250 & 300 cfs);
(3) the effect that alternate tunnel configurations (different sealants, concrete formulations, or types of liner material) would have on these rates of damage.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

Our proposal increase the amount of analysis required in comparison's to Edison's "validation of the present" proposal, but it will remain a desktop study, and the associated additional cost — estimated at $10,000 — will ensure that the project's composition does not unreasonably constrain the potential for hydrological mitigation. The cost is justified by the statutory duty of the managing agencies to balance and adapt the proposed license to mitigate the effects of the project on this outstanding recreational public resource that constitutes Southern California's most important river. Edison's alternative proposal is inadequate in that it does not (1) call for an independent engineering evaluation, (2) call for an examination of the natural rate of tunnel damage from project operations apart from mitigation cycling, (3) call for an evaluation of maintenance flows below 300 cfs, and (4) call for an evaluation of alternate liner materials that could accommodate the statutory mandate for adequate mitigation.

KRB STUDY REQUEST 7: Environmental Flows
(in conjunction with KERN RIVER FLY FISHERS' COUNCIL)

COMMENTS & RESPONSE

Original Study Request (Goals and Objectives):

The goal of this study is to apply the California Environmental Flows Framework (CEFF)(CEFWG, 2021) to the Wild and Scenic North Fork Kern River in order to provide environmental flow assessment and environmental flow recommendations. The objectives of this study are to:

(1) Identify the ecological flow criteria using natural functional flows for the NF Kern River. Determine the natural ranges of the flow metrics for each of the five functional flow components (fall pulse flow, wet-season base flow, wet-season peak flows, spring recession flow, dry-season base flow);
(2) Develop any additional ecological flow criteria for each flow component requiring additional consideration (e.g., additional constraints imposed by water temperature, dissolved oxygen concentration limits, and fish habitation requirements);
(3) Develop environmental flow recommendations which reconcile the ecological flow needs with the non- ecological hydropower management objectives to create a balanced environmental flow recommendation.

SCE Comment

- Stakeholder Requested Study Not Adopted
- Study request is not necessary because existing information is sufficient to answer the questions posed.

Determining functional flow criteria ranges is feasible for this system; however, existing data are available to assess the ecological needs served by functional flows (i.e., fish population data, water quality). Where existing data are not available to assess the ecological needs related to minimum instream flows, SCE is proposing study plans to gather additional information (e.g., studies WR-1 and WR-2). The effects of current managed flows in the NFKR on water and aquatic resources will be assessed in SCE's Application for New License. Following the assessment of Project-related effects, which will be included in the License Application, the FERC ILP includes opportunities for participants to make recommendations regarding license conditions, including potential changes to ecological flow releases. Therefore, applying the California Environmental Flows Framework as a separate study is unnecessary given that the framework utilizes data generated by other proposed studies (and/or existing data), and requires the agreement of and negotiation with all Stakeholders in order to make final flow recommendations, which would not be completed as part of a relicensing study.

KRFFC/KRB Response

We agree the study request was too broad. As pointed out by SCE, the FERC ILP includes a process to submit and develop recommendations on the basis of the study reports and to generate the final flow recommendations with the support of all stakeholders. This FERC process would certainly supersede proposed study objectives (2) and (3) which describe a similar pathway.

However, it remains a fact that there is evidence of a problem in the health of the North Fork Kern River. It consistently fails to meet water quality standards, and the trout populations in the diverted reach are nearly annihilated according to SCE's own data after each dry year while operating under the current minimum flow regime.

While SCE currently proposes additional individual studies on a few unique and problematic elements of the North Fork Kern during a single season (*e.g.,* temperature and D.O.), there remains an absence of holistic data to understand how the quantity, quality, and timing of flows work to support physical, chemical, and biological functions of streams that, in turn, sustain ecosystem health. This is exactly the kind of understanding that modern environmental science can provide with the calculation and eventual management of the functional flow components, as defined in the CEFF.

This proposed study remains a purely desktop study that should be able to be performed much like SCE's proposed hydrology study, and this study has been deemed "feasible for this system" according to SCE. Our proposed study has been rewritten to conform with these comments.

KRB SR-7: ENVIRONMENTAL FLOWS
UPDATED STUDY REQUEST

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to apply the California Environmental Flows Framework (CEFF)(CEFWG, 2021) to the Wild and Scenic North Fork Kern River in order to provide environmental flow assessment and functional flow analysis. The objectives of this study are to:

(1) Identify the ecological flow criteria using natural functional flows for the NF Kern River. Determine the natural ranges of the flow metrics for each of the five functional flow components (fall pulse flow, wet-season base flow, wet-season peak flows, spring recession flow, dry-season base flow);
(2) Determine functional flow criteria for each of Dry, Moderate, and Wet water years using hydrological data available;

(3) Provide the resulting functional flow criteria ranges to all stakeholders.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with "the protection, mitigation of damage to, and enhancement of, fish and wildlife ..., and other aspects of environmental quality" in its formation of hydropower licenses. The California Department of Fish and Wildlife (CDFW) is the relevant State fish and wildlife agency for resource consultation pursuant to the Federal Power Act Section 10(j).[219] CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species[220]s Information generated through this study will further inform the managing agencies' goals by providing a modern, state of the art science-based flow assessment and recommendation that balance ecosystem and human needs for water.

The dewatered reach of the Wild and Scenic North Fork Kern River attracts vast members of the public throughout the year. It is the closest major perennial river to Southern California. It also has inherent outstanding values, and its environmental values (ecological, fish, and wildlife assets) are to be conserved and enhanced under the Wild and Scenic River Act. Flows have been diverted for hydropower on the NF Kern since 1921 when the Kern River No. 3 ("KR3") project first went online, and diversion has continued in similar manner for the subsequent 100 years. Over those 100 years, the science of ecology, hydrology, and environmental protection has evolved significantly. In support of those ecological, fish, and wildlife assets, it is in the interest of the public to review the long-standing ecological impact on the NF Kern, and define a modern, scientifically-based and environmental sound means of balancing resource allocation and preserving the ecological health of one of Southern California's premiere rivers.

USFS is also responsible under Section 7 of the Wild and Scenic River Act with evaluating whether a proposed license renewal for KR3 would cause any direct and adverse consequences on the outstanding resource values provided by the North Fork Kern. This study would help address the information-gathering obligation raised by complaints about angling and the health of the river on the North Fork Kern. USFS should want adequate information on which to determine whether any new license for the project directly and adversely impacts the fishery. And to be clear, recreational fishing is an outstanding resource value identified by USFS in its Wild and Scenic environmental analysis, record of

[219] 16 U.S.C. § 803(j)
[220] Fish & Game Code § 1802

decision-making, and management plan for the dewatered reach of the North Fork Kern (called "Segment 4" in those documents): The 1994 FEIS sates, "The outstandingly remarkable values for Segment 4 include fishing, camping, picnicking, Whitewater boating, hiking, driving for pleasure, and enjoying the scenic beauty."[221] The 1994 ROD states, "Segment 4, was identified as possessing outstandingly remarkable recreational values because of the variety of opportunities it offers to a vast majority of citizens who live within a short distance of this major river (3-4 hours driving distance from the Southern California basin)."[222] The 1994 W&SR Plan directs USFS to "maintain or enhance viable populations of native wildlife and fish species," conduct an "active program of stream habitat improvement," maintain a "riffle to pool ratio [of] approximately 1:1," and manage the area to "maintain or achieve adequate user safety and experience levels."[223] As far back as the 1982 NFK W&SR FEIS, USFS stated that designation of all segments — including segment 4 — "will ensure that [it] continue to provide a riverine (free-flowing) type of fishery."[224]

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

There is evidence of a problem in the health of the NF Kern River. It consistently fails to meet water quality standards and particularly dissolved oxygen (DO) standards, and the trout populations in the diverted reach are nearly annihilated according to SCE's own data after each dry year while operating under the current minimum flow regime which was developed under exactly the previous 1996 FERC process and with the same existing information available. While SCE currently proposes additional individual studies on a few unique and problematic elements of the NF Kern River, there is still an absence of holistic data to understand how the quantity, quality, and timing of flows work to support physical, chemical, and biological functions of streams that, in turn, sustain ecosystem health. This is exactly the understanding that modern environmental science can provide with the calculation and eventual management of the functional flow components, as defined in the CEFF.

Water quality data on the NF Kern is only sparsely available to the public. Even with the minimal data set available, it becomes apparent that the project has an ongoing negative effect on the water quality results, and results within the diverted stretch fail to meet water quality standards. See Table 1 (below) which shows that the presence of the Fairview dam exacerbates poor water temperature, poor dissolved oxygen, and poor conductivity measurements on the diverted stretch of the NF Kern.

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[221] 1994 USFS N&SFKR W&SR FEIS at "Affected Environment" at 61 [.pdf 113]
[222] 1994 USFS N&SFKR W&SR ROD&CMP at ROD 10
[223] 1994 USFS N&SFKR W&SR ROD&CMP at CMP 24, 48-49
[224] 1982 USFS NFKR W&SR FEIS at 57

Table 1: Recent Water Quality Sampling, NFKR (Adventure Scientists, 2021)

DATE	TEMP	TEMP	D.O.	D.O.	COND	COND	FLOW	FLOW
	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW
7/3/2021	20.0	23.7	7.4	6.4	83	254	144	102
7/17/2021	19.3	23.3	7.0	6.2	157	194	126	86
8/7/2021	18.7	22.9	7.7	6.8	166	199	113	71
GOAL	<20.0	<20.0	>8.0	>8.0	<200	<200		

(ABOVE=Above Fairview Dam, BELOW=Below Fairview Dam, TEMP=Temperature (C), D.O.=Dissolved Oxygen (mg/L), COND=Conductivity (μS/cm), FLOW=Average Daily Flow (cfs))

The PAD proposes individual studies on elements of the entire affected Kern River ecosystem: additional water temperature and dissolved oxygen (WR-1), inventorying of foothill yellow-legged frogs (BIO-1), western pond turtles and special-status salamanders (BIO-2), and general wildlife and botanical resources (BIO-3 and BOT-1). However, there is no attempt to define the long-term ecological impacts from drastically altered and reduced hydrology through the diverted stretch (which may render the inventorying efforts fruitless), nor to define the ecologically necessary flows or flow features required to mitigate present and future environmental damage. In the PAD there is also no mention of rapidly evolving ecological science and international flow management guidelines for environmental integrity in hydropower operations (summarized in Duxbury, 2022), nor citation of any of the broad array of environmental guidance developed specifically by the state of California.

The California Department of Fish and Wildlife (CDFW) has a well-developed Instream Flow Program (IFP) and supports the use of a variety of methods to quantify flow regimes for fish, wildlife and their habitats (CDFW, 2017). Used in conjunction with habitat and hydraulic modeling, flow duration analysis and exceedance probabilities are used as standard operating procedures by the state (CDFW, 2013). They acknowledge that "There is a consensus among experts that cumulative flow alterations resulting in instantaneous flows that are ≤30% of the MAD have a heightened risk of impacts to ecosystems that support fisheries" (CDFW, 2017). The current NF Kern minimum instream flow regime is perpetually below that threshold as it remains below 20% MAD for the entirety of the year, and is categorized between "Severe degradation" and "Poor or minimum habitat" at all times (Duxbury, 2022). However, while component of the IFP have been studied, a more comprehensive analysis or characterization has not been proposed for the NF Kern, and there is only a short list of special status streams that are considered for full IFP protections according to the CDFW.

Even more recently, the California Environmental Flows Working Group (CEFWG), a collaboration between experts at the CDFW, State Water Resources Control Board, and other academic and advocacy groups, developed the California Environmental Flows Framework (CEFF). Unlike the IFP which is inconsistently applied to only a few designated streams, the CEFF is meant to provide a consistent statewide approach, and "improve the

scale and pacing at which environmental flow protections can be extended to rivers and streams across the state" (CEFWG, 2021). In fact, the CEFF has already been recommended by the CDFW for use in the relicensing of Devil Canyon Project in the Mojave River watershed (FERC Project No. 14797, FERC eLibrary No. 20210909-5090).

The CEFF is a based upon desktop methods using readily available data (CEFWG Database, 2021 and Zimmerman, 2021) that characterize natural instream flows based upon five functional flow components (fall pulse flow, wet-season base flow, wet-season peak flows, spring recession flow, dry-season base flow). Ecological flow criteria are developed which correspond to these components, and recommendations should match the natural flow values.

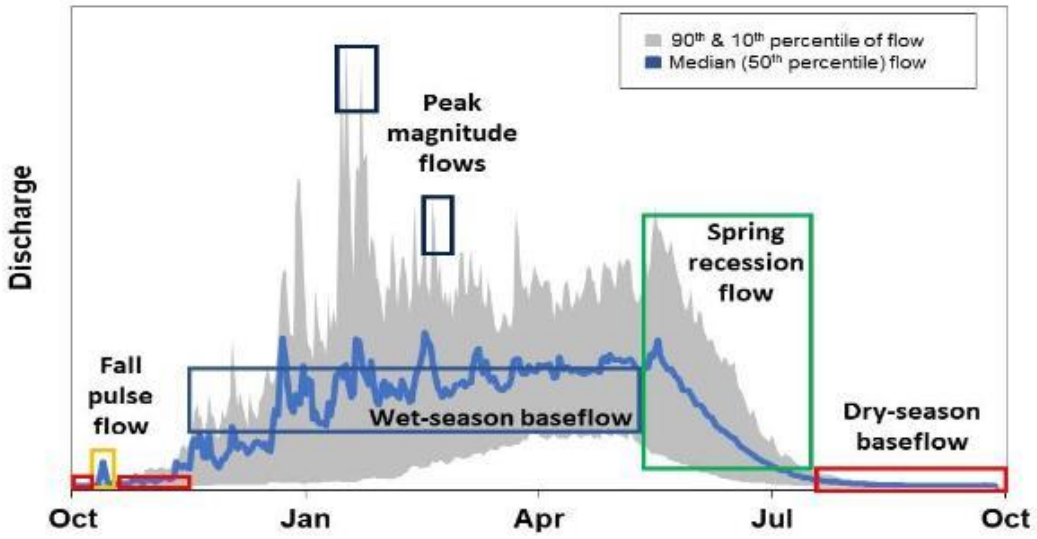

Figure 1: Image of functional flow components for a representative California hydrograph from CEFWG, 2021.

Using the publicly available CEFWG Database's median data from all years, a functional flow metrics table was generated for the NF Kern River. An additional column was added to map the current MIF regime values to the flow components for comparison.

Location of Interest (LOI) = Kern River COMID: 14972877 NF Kern River between Camp Owens and Kernville			
Flow Component	**Flow Metric**	**Predicted Range at LOI median (10th - 90th percentile)**	**Current MIF regime in NF Kern in diverted stretch**
Fall pulse flow	magnitude	510 (213 - 1250) cfs	40 (40 - 650) cfs
	timing	Nov 14 (Oct 5 - Dec 2)	only present if incoming pulse > 600 cfs
	duration	3 (2-7) days	reduced
Wet-season baseflow	magnitude	464 (198 - 605) cfs	100-130 cfs
	timing	Feb 7 (Jan 18 - Mar 26)	April - September
	duration	124 (60-146) days	182
Wet-season peak flows (2 yr. flood)	magnitude	2930 (1880 - 10000) cfs	2330 (1280-9400) cfs
	duration	63 (1-47) days	reduced
	frequency	6 (1-5) occur	reduced
Spring recession flow	magnitude	2440 (1400 - 5250) cfs	1850 (800 - 4650) cfs
	timing	June 11 (May 21 - June 25)	earlier
	duration	78.5 (49-104) days	reduced
	rate of change	4.12 (4.27 - 8.94) %	~
Dry-season baseflow	baseflow	228 (67 - 382) cfs	40-80 cfs
	timing	Aug 25 (Jun 23 - Sept 14)	October - March
	duration	168 (149 - 236) days	182

Comparing between the natural flow regime and the current MIF regime, it can be seen that the fall pulse flow, wet-season baseflow, and dry-season baseflow are significantly different and therefore likely altered from what a natural flow regime would be. This can also be seen graphically in Fig. 2.

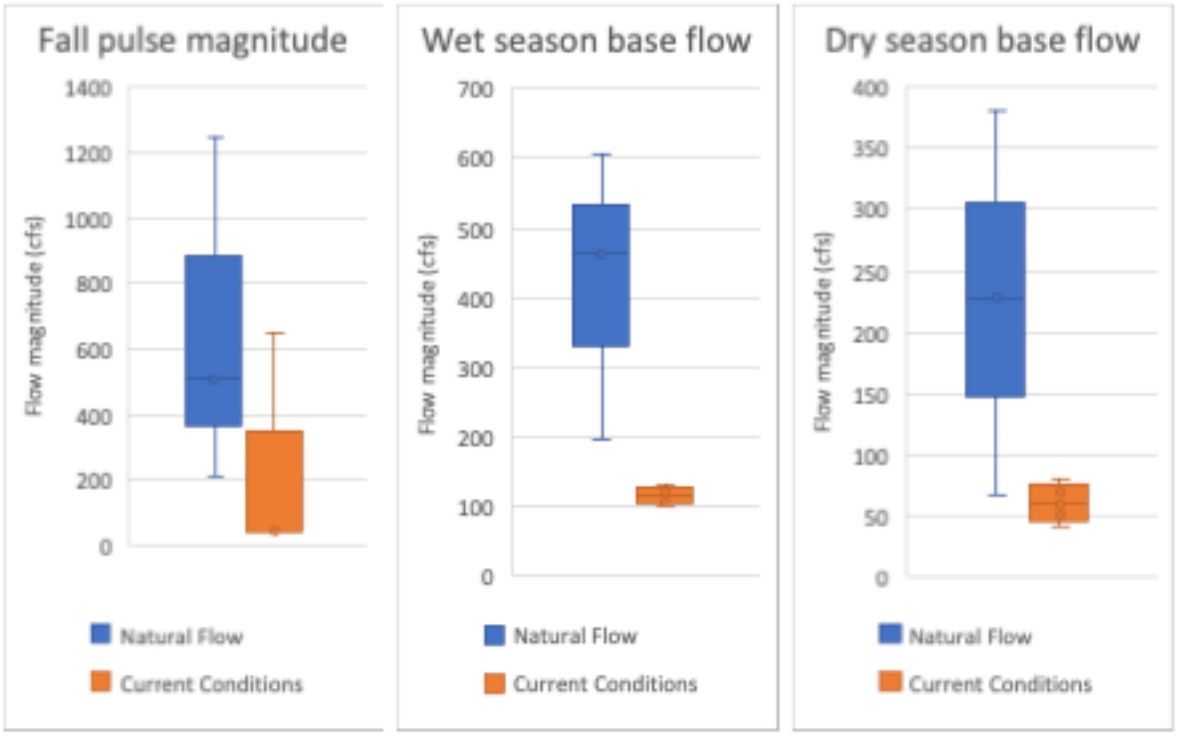

Figure 2: Comparing Natural Flow and Current Conditions of NF Kern. Box plots show whiskers from 10^{th} - 90^{th} percentile as well as median values. $25^{th}/75^{th}$ percentile box lines interpolated from available data.

The failure to provide three of these fine functional flow components in the current MIF regime means that key ecosystem functions and overall ecosystem health are not being supported.

If the full functional flow data from this study, it could be used in conjunction with the results of the additional proposed studies (including additional constraints imposed by water temperature, dissolved oxygen concentration limits, and fish habitation requirements) as a starting point for generation of environmental flow recommendations for the North Fork Kern. The final recommendations need not mandate restoration of full natural flows, but should preserve essential patterns of flow variability not currently considered or included.

For example, as one means of implementation, the CDFW provides low flow threshold and percentage take calculation criteria via the Sustainability Boundary methods (CDFW, 2017; Duxbury, 2022). Comparing the current MIF regime with the recommendations provided by either the CDFW or the CEFF, it can be seen that current modern environmental recommendations in California are broadly in agreement, and the current MIF regime is significantly out of sync with all recommendations (Fig 3).

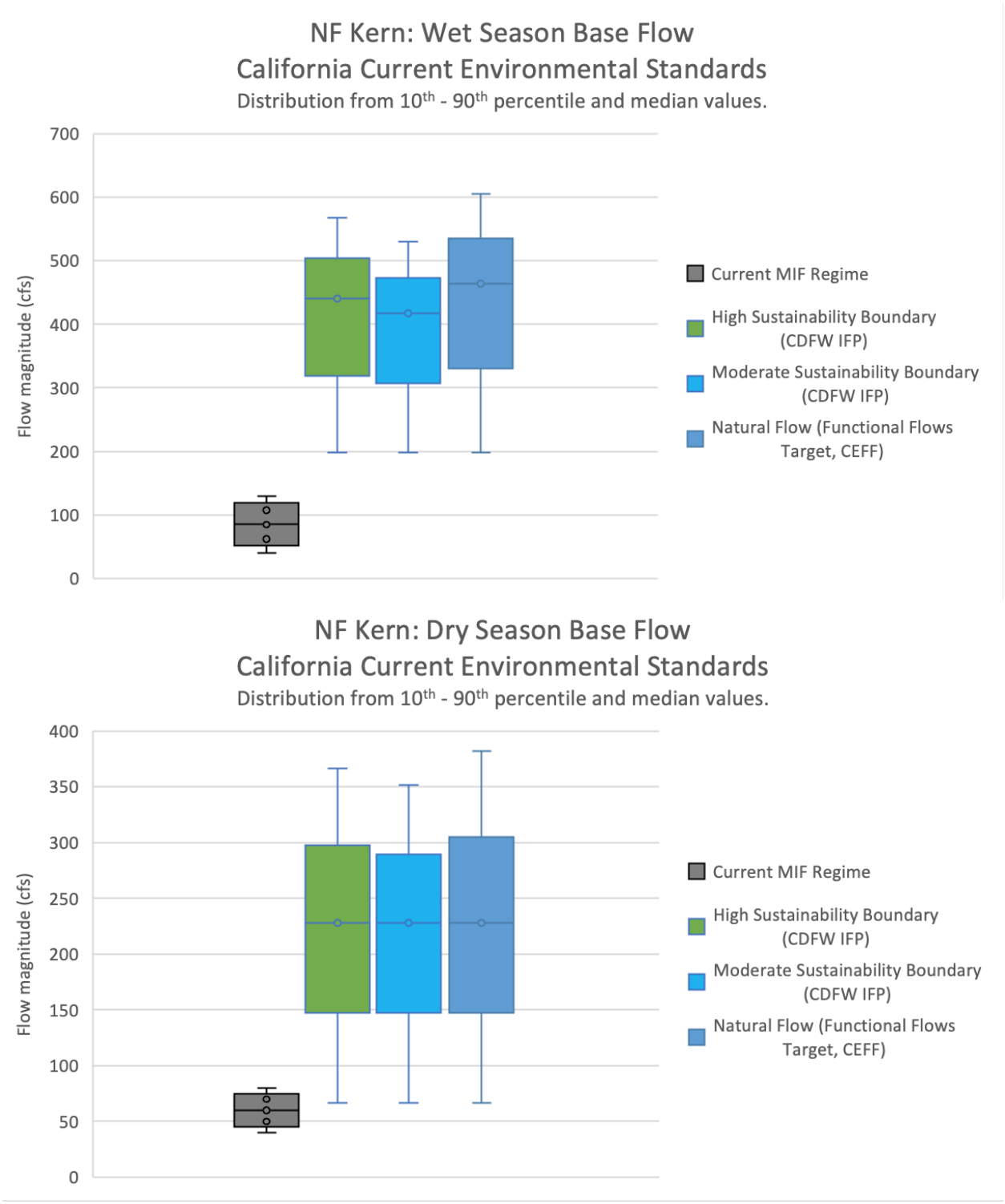

Figure 3: Comparing the Current MIF regime with the modern environmental standards in California

This preliminary analysis suggests that there is a significant discrepancy in these functional flow components between current conditions in the dewatered stretch of the NF Kern and scientifically recommended environmental flows. Therefore, conducting a full analysis per the CEFF, including full analysis by water year type (Wet, Moderate, Dry) as indicated by the framework would provide a full set of environmental flow criteria to be considered as a part of the relicensing.

Finally, note that the reevaluation of the minimum instream flow values also occurred as a part of the previous 1996 relicensing. The previous Environmental Assessment recommended that KR3: "Maintain MIF at Fairview Dam of 100 cfs from October through May and 150 cfs from June through September" (EA KR3, 1996), but this was superseded by the terms of the Settlement Agreement and ignored as a compromise between economic and environmental values.

Other previous environmental analyses also have suggested that current flow thresholds are too low: SCE presents a PHABSIM analysis which notes that the NF Kern "habitat types provide maximum habitat for [rainbow trout] fry and juvenile rearing at flows of 75 to 200 cfs. For adult rainbow trout, maximum habitat values were reached in these habitats at flows of 200 cfs." (SCE, 1991). And they also note that repeatedly when the river values are driven to their lowest extremes (as permitted and directed by the current license), population surveys found that "the estimated density and biomass of both naturally produced and hatchery-raised rainbow trout declined abruptly at all monitoring sites in 2016" due to drought, as had happened before "during the 1987 to 1992 drought". (SCE 2017, 2021). The 2016 study revealed a tragic trout population decline of about 50% above Fairview Dam, but an astonishing, near-total decline of 97% below the dam (PAD at 5-63). Yet nowhere in the PAD is there suggested a review of fish needs, environmental flow needs, nor any mention of the changing state of environmental science and ecological management in California—or indeed a change of any license condition whatsoever.

Instead, the plant has been operating more or less the same way for 100 years, while the ecological science has evolved dramatically. Ultimately, continuing to follow "flow recommendations that deviate from ecological flow criteria may satisfy other management needs, but risk failure in achieving ecological management objectives" (CEFWG, 2021). For the sake of environmental preservation, the ecological flow criteria should be evaluated and included for real consideration.

Criterion (5) - Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The project presently takes the first 40-45 cfs of incoming flows at the Fairview diversion dam for minimum power generation, and then, after the seasonally varying minimum instream flow requirement is satisfied, takes the next 600 cfs. These conditions leave only 40-130 cfs, or less, in the dewatered reach when incoming flows are below 640 and 770 cfs, and decreases all incoming flows above 640 and 770 cfs by 600 cfs. This current project

operational regime is the direct cause of the low flows in the dewatered reach as described above. The results of this study will provide environmental flow data that will directly inform the development of flow recommendations and new license requirements which will align instream flows management with modern environmental management practices.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The study should follow the methods outlined in California Environmental Flows Framework Version 1.0 (CEFWG, 2021). This framework defines each of the objectives as outlined here, and defines steps by which to carry them out:

(1) Identify the ecological flow criteria using natural functional flows for the NF Kern River. Determine the natural ranges of the flow metrics for each of the five functional flow components (fall pulse flow, wet-season base flow, wet-season peak flows, spring recession flow, dry-season base flow);
(2) Determine functional flow criteria for each of Dry, Moderate, and Wet water years using hydrological data available;
(3) Provide the resulting functional flow criteria ranges to all stakeholders.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The CEFF is designed specifically to be an efficient and scientifically defensible framework, which should "help managers improve the speed, consistency, standardization, and technical rigor in establishing environmental flow recommendations statewide" (CEFWG, 2021). Performing individual piecemeal studies on individual ecosystem components is expensive, time consuming, and difficult to tie together into a complete watershed management plan. As such, the CEFF presents a streamlined process that can be used in a desktop fashion with data that is readily available already to determine the baseline ecological flow criteria from natural functional flows. The additional flow component data (water temperature, DO, and physical habitat) generated as a result of the already accepted studies can be incorporated with the natural functional flows in order to generate an entire representative set of ecological flow criteria. No additional field work beyond what is already proposed is required for this study. The cost and effort should accordingly be less than that proposed for SCE's water quality or hydrology studies as that data can fit directly into the CEFF.

"Water managers need a consistent statewide approach that can help transform complex environmental data into scientifically defensible, easy-to-understand environmental flow recommendations that support a broad range of ecosystem functions and preserve the

multitude of benefits provided by healthy rivers and streams" (CEFWG, 2021), and that is exactly what this functional flow study is meant to provide.

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KRB STUDY REQUEST 8: Whitewater Flows

COMMENTS AND RESPONSE

EDISON: *The lack of storage at Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR severely limits the scheduling and potential flow volumes that can be investigated for a controlled flow study, thereby violating the experimental design necessary for comparative data analysis.* (PSP at 23.)

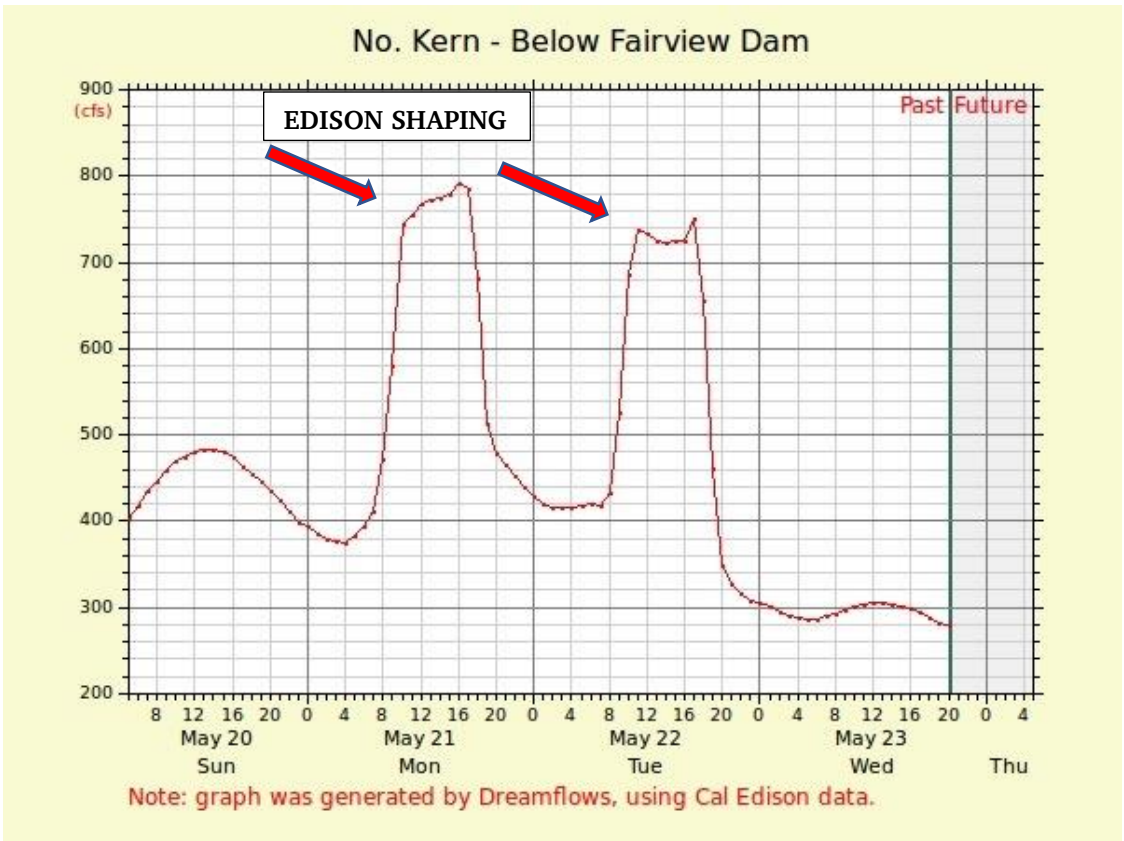
KRB: Not so. First, Edison continues to cite the 1994 on-water boating study without criticism. (See, e.g., REC-1 at 4, PAD at 5-139 & 5-140, 6-5; PAD Appendix A-1 through A-3 & 2021FEB10 TWG.) That study was accomplished notwithstanding the ostensibly "severe" limitations for study posed by the project. So with one hand, Edison wags a finger saying, "No study can be done here," while with the other hand, Edison holds up an old study and proposes that it inform mitigation in this proceeding. Edison should explain which hand we should believe.

The reality is that constraints for an on-water boating study are not severe. The existence of the 1994 study proves the only thing preventing an updated on-water study is lack of will. This is shown by the old study's reasonable efforts to work with the hydrograph it was given that year.[225] It is shown further by an analysis of how many days per year, on average, certain flows can be achieved in the dewatered reach by Edison's ability to "shape" flows anywhere from the level of natural incoming flow at Fairview Dam to a figure 600 cfs below that level. For instance, if incoming flows are 900 cfs, Edison could set the flow in the dewatered reach *anywhere between 300 and 900 cfs for study*. That capability is a powerful tool for study use.

Here is an example of Edison shaping flows in the dewatered reach from May 2018; the first chart shows flows above Fairview Dam, the second below:

[225] FERC eLibrary No. 19940802-0010 at .tif 143-155 ["Plan of Action for conducting Whitewater River Evaluation and Preparing Summary Report"]


No. Kern - Above Fairview Dam
1200
(cfs)
1100
1000
900
800
Past
Future
8 12 16 20 0 4 8 12 16 20 0 4 8 12 16 20 0 4 8 12 16 20 0 4
May 20
Sun
May 21
Mon
May 22
Tue
May 23
Wed
Thu
Note: graph was generated by Dreamflows, using Cal Edison data.


No. Kern - Below Fairview Dam
900
(cfs)
800
700
600
500
400
300
200
EDISON SHAPING
Past
Future
8 12 16 20 0 4 8 12 16 20 0 4 8 12 16 20 0 4 8 12 16 20 0 4
May 20
Sun
May 21
Mon
May 22
Tue
May 23
Wed
Thu
Note: graph was generated by Dreamflows, using Cal Edison data.

As can be seen above, flows above Fairview Dam between 10 a.m. and 5 p.m. on May 21 were between 1,000 and 1,100 cfs. Edison was able to shape the flows below Fairview and keep them at about 775 cfs (760-790). On May 22, incoming flows were 980 to 1,070 cfs, and Edison shaped flows below the dam at about 730 cfs (720-740).

The fact that Edison can shape flows below Fairview anywhere between the level of incoming flow to a level 600 cfs below that figure means there is a vast inventory of days upon which different flow levels could be tested in the dewatered reach. KRB took the daily average flow data from the last 25 years[226] and found the following average numbers of days upon which different flow levels could be tested annually:

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
200	299	4780	191
300	399	3276	131
400	499	2184	87
500	599	1757	70
600	699	1461	58
700	799	1218	49
800	899	1014	41
900	999	933	37

These figures show there to be more than a month's worth of days on average — indeed, two or more months' worth at the 600-699 cfs range and below — for testing at these relevant ranges.

Tightening the targeted range, moreover, does not appreciably decrease these opportunities; here is the same data with the testing range decreased to 50 cfs, which is about the range tested in 1994 ("Probable Flow During Boating")[227]:

[226] USGS gauges: https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11185500 & https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11186000

[227] 1994 Whitewater Study at .pdf 118:

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
RANGE (CFS) LOW	HIGH	TOTAL DAYS	DAYS PER YEAR
200	249	4681	187
250	299	3926	157
300	349	3191	128
350	399	2581	103
400	449	2110	84
450	499	1863	75
500	549	1677	67
550	599	1547	62
600	649	1402	56
650	699	1273	51
700	749	1166	47
750	799	1075	43
800	849	967	39
850	899	922	37
900	949	883	35
950	999	828	33

We have updated our study request to reflect this information.

EDISON: *A controlled flow study below Fairview Dam would be limited to collecting data for a narrow range of flows, thus failing to meet the study objectives as described in Whittaker et al. (2005).* (PSP at 23.)

KRB: Whittaker does not demand the study of a wide range of flows. To the contrary, Whittaker notes that only "[t]hree to four flows are commonly assessed in these [on-water] studies,"[228] and then makes clear that these studies "*work best* when they are *focused on discrete flow ranges where more precision is needed*."[229] Focusing on discrete flow ranges is precisely what we have proposed. No one in this proceeding has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. The only suggestion is that as times have changed, boaters enjoy paddling at even lower flows, the project's negative effects on recreation have increased commensurately, and thus flows below those levels should be tested.[230] We believe that — at a minimum — an evaluation of flows at 300, 400, 500, and 600 cfs is in

[228] *Id.*, at 26
[229] *Id.*, at 27 (italics added)
[230] KRB SD1 at 48-61

order to capture present-day project effects on all craft. These levels fall below those identified as enjoyable by various craft in the 1994 study — *i.e.*, these are four levels where, in Whittaker's words, "more precision is needed." Nevertheless, the particular levels of flow to be evaluated can await guidance from the level 1 and 2 portions of the proposed study.

We have updated our study request to reflect this information.

EDISON: *[S]tudy participants will likely vary across flow increments and not represent a broad cross-section of the boating community because study participants would need to mobilize multiple times on short notice to boat a number of flow increments. The experimental design of the controlled flow study requires the same group of study participants to boat each flow increment across a broad range of flows for comparative purposes.* (PSP at 23.)
KRB: At no point in *Flows and Recreation* does Whittaker demand that on-water studies be conducted by the same group of people. Given the contingencies of life confronting individuals involved in an on-water study, such a standard would invite failure: it is more likely than not that a statistically significant group would not complete its work without absenteeism. Further, the 1994 study did not feature the same people running every segment at every different level, yet Edison does not criticize the 1994 study for that; to the contrary, Edison embraces that study.[231] Edison is asserting (without authority) its idea of the perfect — identical groups running each segment at each level — as a means to avoid the cost of an on-water study and substitute instead a tool much with less reliability, an online survey untethered to contemporaneous boating trips. Again, Whittaker does not demand that user groups be identical; but Whittaker *does* warn about the phenomenon of groupthink and bad memory that can make mischief in an untethered survey.

As for the issue of cross-section, Edison again posits the perfect — a perfect cross-section of the boating community — as a means to avoid the cost of this study and settle for a survey of much less reliability. Whittaker points out that there are obvious "trade-off[s between] 'representativeness' against potential cost or logistical complexity.'"[232] These trade-offs did not make Whittaker question the value of on-water studies or elevate untethered surveys above them; rather, these are questions that go to study design: "Most studies use 'purposive sampling,' inviting participants based on their 1) skill and safety record, 2) proximity to the river, and 3) ability to evaluate a diversity of whitewater opportunities. This requires close coordination with stakeholder groups." There is no reason purposive sampling cannot be used to obtain the most accurate results possible given the

[231] See PSP REC-1; PAD at 5-139 & 5-140, 6-5; PAD Appendix A-1 through A-3 & REC-1 at 4; 2021FEB10 TWG
[232] Whittaker, *Flows and Recreation* (2005) at 26

configuration of the project. Further, had Whittaker been as flummoxed as Edison by the absence of storage, he would not have included the use of natural flows in his guide.[233]

We have updated our study request to reflect this information.

EDISON: *The online flow comparison survey resolves the limitations of a controlled flow study in the 16-mile bypass below Fairview Dam. The online flow comparison survey is not limited to the unpredictable snowpack and associated flows during the ILP study period.* (PSP at 24.)
KRB: Edison's proposed survey "resolves" these purported issues by decreasing the rigor and reliability of the data obtained. In our experience, most boaters do not independently investigate, follow, log, or record flows and the experiences they have had with those flows. As Whittaker cautions, "Assessing how well users are calibrated to a gage is important with [the flow survey] method. Pre-testing or pre-study interviews/focus groups should be considered to probe whether users really pay attention to a gage through the range of interest."[234] Further, "Some users may not independently evaluate flows, and simply repeat 'conventional wisdom' about acceptable or optimal flows for a recreation opportunity. Unfortunately, this method is limited in its ability to distinguish independent evaluations from those that are 'passed down' over the years."[235] As Whittaker concludes, far greater *reliable* resolution of boater preferences is to be found with on-water studies.[236]

And again, Whittaker is simply undeterred by a project's inability to pinpoint flows with storage: "In some cases, the study may capitalize on natural flows instead of controlled

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[233] *Ibid*. Note, moreover, that the "natural flows" Whittaker references invariably entail a diurnal, and thus what is tested is user experience in a reasonably constrained range of flow, as seen in the 1994 study ("probable boating flow"). See 1994 Whitewater Study at .pdf 118:

	Approximate Peak Flow Below Dam	Probable Flow During Boating	Average Daily Flow Below Dam
May 11	322	298 - 322	261
May 12	696	670 - 696	560
May 13	1085	1048 - 1085	919
May 14	1239	1165 - 1239	1065
May 15	1357	1315 - 1357	1180

[234] *Id*., at 24
[235] *Ibid*.
[236] *Id*., at 26

flows," Whittaker writes.[237] Indeed, that is precisely how the 1994 study came to be. But as we have shown above, the existence of Fairview Dam and its capacity to divert up to 600 cfs *greatly expands* the ability of Edison to conduct a study on a range of targeted flows. No one has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. We still do. The only suggestion is that, as times have changed, we have come to enjoy flows lower than those levels. As Chris Brown, owner of the local Whitewater Voyages rafting company recently commented, the project "eliminates the very good Kayaking and 'low water' craft (splashyaks, shredders, paddle board, etc.) flows of 200-700cfs."[238] We agree that the low end of the numbers obtained by the 1994 study has come down, the project's negative effect on recreation has increased commensurately, and thus flows below those levels beg to be tested.[239]

There is another way to obtain reasonably reliable results comparable to a targeted on-water flow study: namely, to gather survey results that are tethered to actual boating trips. These would be reasonably contemporaneous reports of experiences in each segment at relevant target flow ranges. Tying survey results to actual recent boater trips goes well towards reducing the problems of memory haze and groupthink identified by Whittaker. This can be accomplished through one of two means: either through an intercept team or through a tightly controlled online reporting system. Intercepting boaters taking out at segments when the flows are "right" — *i.e.,* at targeted levels of interest for study — appears to provide a heightened quality of data in comparison with a more generalized survey untethered to recent boating. Results of intercept surveys would be contemporaneous with the segment and flow level run, and thus there would be no issue with memory and less concern about the rote transmission of "conventional wisdom." Alternatively, a controlled online survey system could be established that asks boaters to report within a reasonable time (say, 18 hours) of their running a trip on a segment. Boaters could describe the date, time, and experience on the segment per study design, and those responses would then be cross-checked against actual gauge information and included in (or excluded from) the study analysis.

We have updated our study request to reflect this information.

EDISON: *American Whitewater has also used online flow comparison surveys to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible . . . .* (PSP at 24.)

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[237] *Ibid*.
[238] FERC eLibrary at 20220121-5024
[239] KRB SD1 at 48-61

KRB: The two AW studies cited by Edison are inapposite. One was an internal study[240]; the other the result of a grant[241]; neither was conducted during a FERC proceeding, and thus both were done to keep costs down rather than to obtain the most reliable data with the best available science. Here, by contrast, we have a relicensing proceeding and an applicant that can substantially affect flows in the dewatered reach. An on-water study has been conducted before, and it can be again. There is no reason to settle for less reliable data when an on-water study would most accurately capture project effects upon whitewater recreation for this outstanding public resource.

We have updated our study request with this information. We have also corrected two errors identified by Edison.[242]

KRB SR-8: WHITEWATER FLOWS
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to establish the inventory of days whitewater recreation is lost to project operations. It will elicit the ranges of flow at which enjoyable low flow boating and low-optimal flow boating exist for each form of whitewater recreation. That information, coupled with the historical hydrograph of incoming flows at Fairview Dam, will paint a full picture of project effects in the dewatered reach, thus informing both the scope of the problem to be mitigated and the opportunities for mitigation.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including recreational and environmental values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the

[240] https://www.americanwhitewater.org/content/Article/view/article_id/33759/
[241] https://www.americanwhitewater.org/content/Article/view/article_id/jAtde6mnf7fUPZoVvAvD9/
[242] PSP at 23 ["Level 3" and "(2005)"]

public's utilization and enjoyment of the affected resource, including whitewater recreation. The results of this study will further the managing agencies' goals by providing solid data about project effects and potential enhancements *vis-à-vis* the number of days incoming flows at Fairview Dam are sufficient for whitewater recreation in the dewatered reach, but those opportunities are removed by project operations. This study would accordingly serve the public interest in the design of a license best adapted for use of this public resource.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

The proposed study seeks to ultimately replace the only existing on-water study of whitewater flows on the NFKR: the 1994 Edison study.

The 1994 study methodology and report were heavily criticized by American Whitewater when it was released.[243] In addition, it did not test any flows between 325 and 675 cfs.[244] Moreover, times have changed: boater enjoyment of low water creeking has increased, new boater skills for enjoying low water boating have been developed, and boat designs have made low water boating more enjoyable. There is a new generation of boats, boaters, and boating skills on the Kern that simply were not present in 1994 and thus were not accounted for in the study.[245] No one in this proceeding has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. The only suggestion is that as times have changed, boaters enjoy paddling at even lower flows, the project's negative effects on recreation have increased commensurately, and thus flows below those levels should be tested.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

By taking the first 605 cfs out of the river at Fairview Dam once MIF requirements are met, project operations significantly decrease water levels on the dewatered stretch below. The results of this study will help inform the inventory of days on which the diversion denies the public opportunity for whitewater recreation, which is the only way to fully capture the effects of project operations and understand the scope of effects to be mitigated, along with informing managers of when there are opportunities to mitigate those effects. This study will also prevent old, misleading data and analysis from the 1994 study from invading the current process. Edison has clearly signaled it intends to use the 1994

[243] FERC eLibrary No. 19941011-0107
[244] FERC eLibrary No. 19940802-0010
[245] See KRB SD1 at 58

study in this proceeding.[246] A new study with contemporary boats, boaters, boating techniques, and study methodologies will ensure that the 1994 study not have undue or unmerited impact on managing agencies as they attempt to capture and understand the full impact of project operations on NFKR recreation.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Whittaker *et al.* (2004) have described the methodology for this study. Results of the Level 1 and 2 studies should inform the flows tested in a Level 3 on-water targeted flow study. We propose a study consistent with those standards. It would include a range of boating craft: oar rigs, paddle rafts, shredders, open canoes, hardshell kayaks, inflatable kayaks, riverboards, and stand-up paddleboards. We believe it should take place with at least four targeted flow levels: 300, 400, 500, and 600 cfs. It would distinguish between "segment 1" (the dewatered reach above Hospital Flat) and "segment 2" (the dewatered reach below)[247], and be open to all interested boaters. It would have a simplified evaluation process compared to that of the 1994 study questionnaire. And it would take place prior to peak snowmelt, when more days are likely to be available to test the various flow levels and KR3 operations are more likely to deprive boaters of recreational opportunities.[248]

The existence of the 1994 study proves the only thing preventing an updated on-water study is lack of will. This is shown by the old study's reasonable efforts to work with the hydrograph it was given that year.[249] It is shown further by an analysis of how many days per year, on average, certain flows can be achieved in the dewatered reach by Edison's ability to "shape" flows anywhere from the level of natural incoming flow at Fairview Dam to a figure 600 cfs below that level.

Here is an example of Edison shaping flows in the dewatered reach from May 2018; the first chart shows flows above Fairview Dam, the second below:

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[246] PAD at 5-139 & 5-140, 6-5; PAD Appendix A-1 through A-3 & REC-1 at 4; 2021FEB10 TWG

[247] See PAD at 5-52 [steeper, more channelized nature of Segment 1 (which includes the popular Fairview, Chamise Gorge, and Ant Canyon runs) offers enjoyable boating at flows lower than are required for enjoyable boating in Segment 2]

[248] See KRB SD1 at 48

[249] FERC eLibrary No. 19940802-0010 at .tif 143-155 ["Plan of Action for conducting Whitewater River Evaluation and Preparing Summary Report"]


No. Kern - Above Fairview Dam
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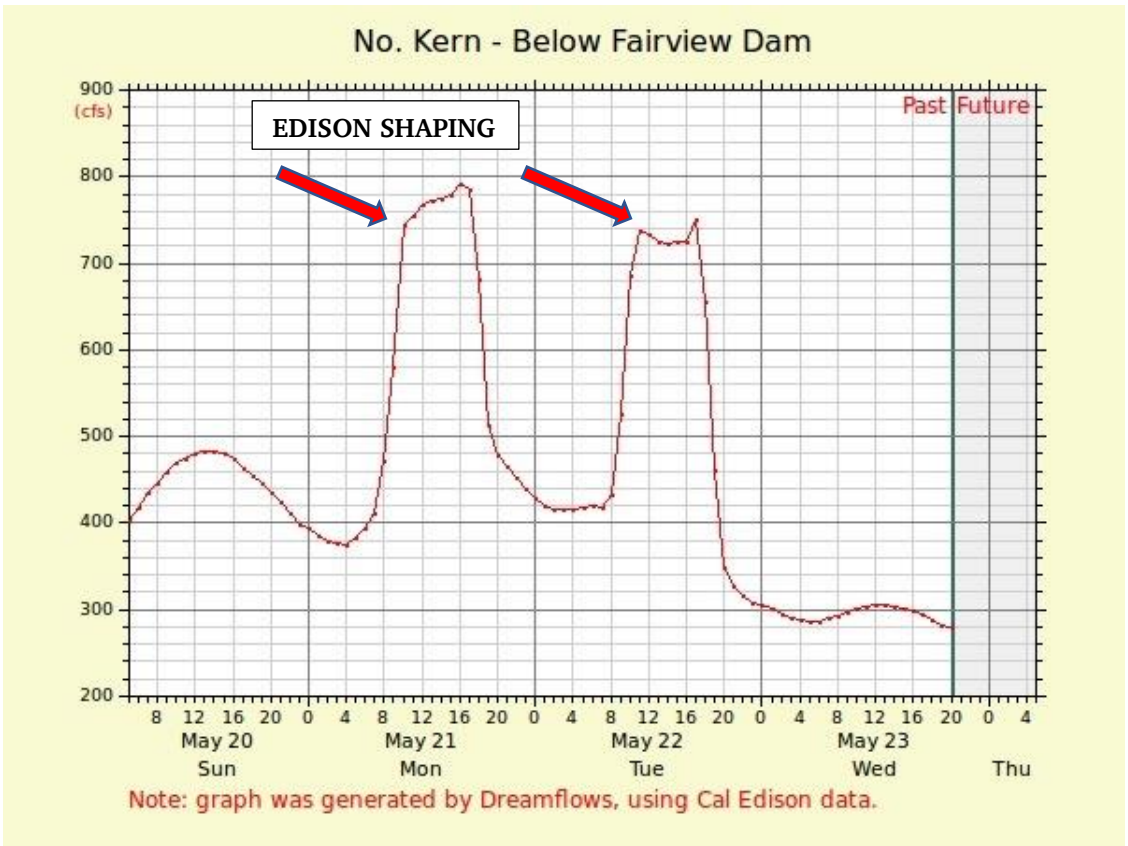
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As can be seen above, flows above Fairview Dam between 10 a.m. and 5 p.m. on May 21 were between 1,000 and 1,100 cfs. Edison was able to shape the flows below Fairview and keep them at about 775 cfs (760-790). On May 22, incoming flows were 980 to 1,070 cfs, and Edison shaped flows below the dam at about 730 cfs (720-740).

The fact that Edison can shape flows below Fairview anywhere between the level of incoming flow to a level 600 cfs below that figure means there is a vast inventory of days upon which different flow ranges could be tested in the dewatered reach. KRB took the daily average flow data from the last 25 years[250] and found the following average numbers of days upon which different flow levels could be tested annually:

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These figures show there to be more than a month's worth of days on average — indeed, two or more months' worth at the 600-699 cfs range and below — for testing at these relevant ranges.[251]

Tightening the targeted range, moreover, does not appreciably decrease these opportunities; here is the same data with the testing range decreased to 50 cfs:

[250] USGS gauges:
https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11185500 &
https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=11186000
[251] Spreadsheet available:
https://www.kernriverboaters.com/s/KRB_KR3_SHAPE_FLOWS.xlsx

MEAN DAYS PER YEAR FLOWS ARE SUITABLE FOR TESTING WITHIN GIVEN RANGES (NFKR WY 1997-2021)			
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Whittaker does not demand the study of a wide range of flows. To the contrary, Whittaker notes that only "[t]hree to four flows are commonly assessed in these [on-water] studies,"[252] and then makes clear that these studies "*work best* when they are *focused on discrete flow ranges where more precision is needed*."[253] Focusing on discrete flow ranges is precisely what we have proposed. No one in this proceeding has suggested that the 1994 study's determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. The only suggestion is that as times have changed, boaters enjoy paddling at even lower flows, the project's negative effects on recreation have increased commensurately, and thus flows below those levels should be tested.[254] As Chris Brown, owner of the local Whitewater Voyages rafting company recently commented, the project "eliminates the very good Kayaking and 'low water' craft (splashyaks, shredders, paddle board, etc.) flows of 200-700cfs."[255] We believe that — at a minimum — an evaluation of flows at 300, 400, 500, and 600 cfs is in order to capture present-day project effects on all craft. These levels fall below those identified as enjoyable by various craft in

[252] *Id.*, at 26
[253] *Id.*, at 27 (italics added)
[254] KRB SD1 at 48-61
[255] FERC eLibrary at 20220121-5024

the 1994 study — *i.e.*, these are four levels where, in Whittaker's words, "more precision is needed." Nevertheless, the particular levels of flow to be evaluated can await guidance from the level 1 and 2 portions of the proposed study.

At no point in *Flows and Recreation* does Whittaker demand that on-water studies be conducted by the same group of people. Given the contingencies of life confronting individuals involved in an on-water study, such a standard would invite failure: it is more likely than not that a statistically significant group would not complete its work without absenteeism. Further, the 1994 study did not feature the same people running every segment at every different level, yet Edison does not criticize the 1994 study for that; to the contrary, Edison embraces that study.[256]

Whittaker points out that there are obvious "trade-off[s between] 'representativeness' against potential cost or logistical complexity.'"[257] These trade-offs did not make Whittaker question the value of on-water studies or elevate untethered surveys above them; rather, these are questions that go to study design: "Most studies use 'purposive sampling,' inviting participants based on their 1) skill and safety record, 2) proximity to the river, and 3) ability to evaluate a diversity of whitewater opportunities. This requires close coordination with stakeholder groups." There is no reason purposive sampling cannot be used to obtain the most accurate results possible given the configuration of the project. Further, had Whittaker been as flummoxed as Edison by the absence of storage, he would not have included the use of natural flows in his guide: "In some cases, the study may capitalize on natural flows instead of controlled flows," Whittaker writes.[258] And again, Edison maintains a substantial capacity to shape the flows

[256] See PSP REC-1; PAD at 5-139 & 5-140, 6-5; PAD Appendix A-1 through A-3 & REC-1 at 4; 2021FEB10 TWG

[257] Whittaker, *Flows and Recreation* (2005) at 26

[258] *Ibid*. Note, moreover, that the "natural flows" Whittaker references invariably entail a diurnal, and thus what is tested is user experience in a reasonably constrained range of flow, as seen in the 1994 study ("probable boating flow"). See 1994 Whitewater Study at .pdf 118:

below Fairview Dam, radically increasing the number of days available for testing at desired levels.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The cost for the Level 3 portion of this study could be as little as $30,000 if Edison used teams of interceptors for one Spring to obtain paddler flow evaluations at whitewater takeouts. The cost and effort are justified given the vast inventory of days project operations remove all opportunity for whitewater recreation on this river[259], the protected nature of this river given its outstanding recreational values, and the importance of this river to all of Southern California. Edison's alternative proposed study is insufficient as it arbitrarily forecloses a path to an on-water study based on a misreading of Whittaker and without a full exploration of the methods by which an on-water study can be accomplished. This study promises superior reliability and resolution of data in comparison with Edison's proposed untethered online survey.

	Approximate Peak Flow Below Dam	Probable Flow During Boating	Average Daily Flow Below Dam
May 11	322	298 - 322	261
May 12	696	670 - 696	560
May 13	1085	1048 - 1085	919
May 14	1239	1165 - 1239	1065
May 15	1357	1315 - 1357	1180

[259] See KRB SD1 at 56

KRB STUDY REQUEST 9: Comparative Whitewater Opportunities

RESPONSE TO COMMENTS

EDISON: *The request to study other recreational opportunities outside of the Project Area/region is not likely to help inform the development of a license condition. Conducting research about whitewater opportunities outside of the Kern River will not add to the understanding of potential project effects of Project operations on the NFKR.* (PSP at 30.)
KRB: We disagree with this assertion. Elsewhere, Edison proposes to "contextualize" the economic contribution of recreation in the dewatered reach by comparing it with the overall contribution of recreation from the Kern River Valley down to Bakersfield some 40 miles away. (PSP SOCIO-1 at 1 [study area includes "the main stem of the Kern River"].) Such contextualization is improper because it is not measuring project effects. We seek to properly contextualize the project's effect on whitewater recreation — *i.e.*, to fully capture that impact — through a comparison of boating opportunities available to boaters in Southern California with those available to boaters in the Bay Area, including the amount of hydro disruption accepted to obtain those opportunities. The results of this study would pinpoint exactly how important the NFKR is to the Southern California boating community and what standard contemporary social values have set for whitewater boating opportunities a half-dozen hours to the north. This contextualization will increase the likelihood that rec flow license conditions for any new license issued here strike an informed balance between developmental and non-developmental values that is appropriate — *i.e.*, that places a contemporary valuation on each. For these reasons, we ask that the Commission direct Edison to implement our updated comparative whitewater study proposal.

KRB SR-9: COMPARATIVE WHITEWATER OPPORTUNITIES
UPDATED STUDY PROPOSAL

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to compare and contrast available whitewater recreational opportunities for people from Southern California with those from the Bay Area. It will reveal the inventory of whitewater opportunities afforded to residents of each area and identify whether any differences are due to natural or regulatory differences.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

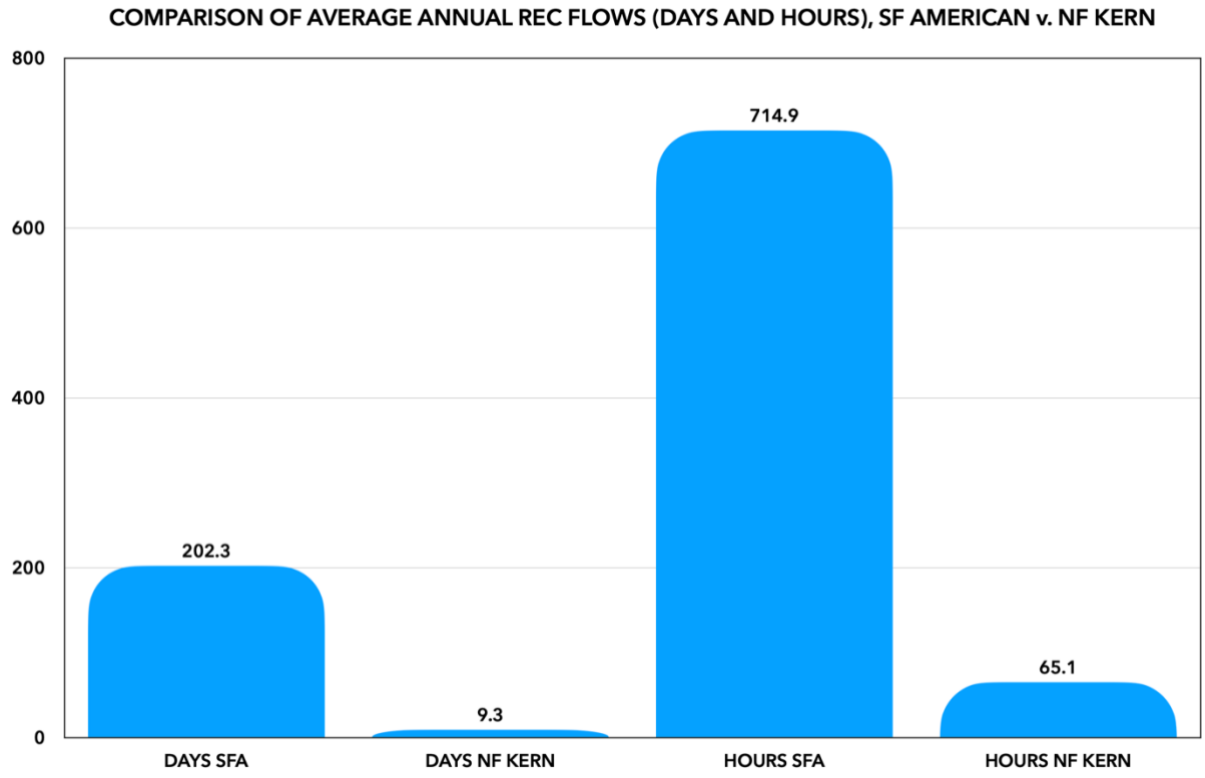
Not applicable.

Criterion (3) – if the requester is not a resource agency, explain any relevant public interest considerations in regards to the proposed study.

The Commission is charged by the Federal Power Act to balance developmental values with nondevelopment values, including recreational and environmental values, in its formation of hydropower licenses in a manner best adapted for the affected resource, its user groups, and the goals of existing management plans. The United States Forest Service is charged with establishing conditions in hydropower licenses that are necessary for the public's utilization and enjoyment of the affected resource, including whitewater recreation. The results of this study will further the managing agencies' goals by providing solid data about the differences in whitewater recreational opportunities between people in Southern California in comparison with those living in the greater Bay Area.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

We are not aware of any information in the FERC record comparing available whitewater recreation opportunities of a resident of Southern California with a resident of Northern California. We are aware that the amount of hydro disruption tolerated in the northern section for recreational flows is much greater than that to the south[260]:



[260] KRB SD1 at 68

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

By taking the first 605 cfs out of the river at Fairview Dam once MIF requirements are met, project operations significantly decrease water levels on the dewatered stretch below. Study results could underline the importance of the NFKR to Southern California whitewater recreation, reveal contemporary social expectations with regard to whitewater recreation, and inform the agencies on the scope to which other mitigation schemes impose curtailments and disruptions to hydropower operations in the public interest.

This study seeks to properly contextualize the project's effect on whitewater recreation — *i.e.*, to fully capture that impact — through a comparison of boating opportunities available to boaters in Southern California with those available to boaters in the Bay Area, including the amount of hydro disruption accepted to obtain those opportunities. The results of this study would pinpoint exactly how important the NFKR is to the Southern California boating community and what standard contemporary social values have set for whitewater boating opportunities a half-dozen hours to the north. This contextualization will increase the likelihood that rec flow license conditions for any new license issued here strike an informed balance between developmental and non-developmental values that is appropriate — *i.e.*, that places a contemporary valuation on each.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The methodology would be desktop study with written public input. The study would evaluate the current opportunities for whitewater recreation afforded both interested persons and enthusiasts in Southern California, and to compare them with the same opportunities for interested persons and enthusiasts living in the Northern part of the state — specifically, what options are seasonally available to persons of different whitewater skills/crafts/interests who live in, for instance, Los Angeles, San Diego, and Orange and Riverside Counties compared with persons who live in San Francisco, Sacramento, and the greater Silicon Valley.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

Since this would be a desktop-only study with solicited written input, the cost would be an estimated $10,000. The effort and cost are justified given the vast inventory of days project operations remove all opportunity for whitewater recreation on this river[261], the protected nature of this river given its outstanding recreational values, the visceral importance of this river to Southern California, and the statutory duty of the managing agencies to balance and adapt the proposed license to mitigate the effects of the project on this outstanding recreational public resource in the public interest in line with contemporary social values. There are no proposed alternative studies.

[261] KRB SD1 at 23-30 & 48-69

V • KRB INFORMATION REQUESTS

KRB asks that the Commission direct Edison to comply with our four information requests that were not addressed in the PSP.

KRB IR1: CAISO BID HISTORY

The California Independent System Operator ["CAISO"] creates and regulates the California energy market. Through its pricing mechanisms, the CAISO market signals 24/7/365 through its prices whether power generation is highly valuable to the grid (by offering high prices), moderately valuable to the grid (moderate prices), or marginally valuable to the grid (low prices). It even signals when power generation if harmful to the grid by offering negative prices.

Edison participates in the CAISO market, bidding the power produced by KR3 into the "day ahead" market.[262]

The Federal Power Act, as interpreted by the Commission, charges it with balancing the noneconomic value of recreation against the economic value of power generation and designing a license that is best adapted to the project given the relative strength of these competing values.

One obvious metric of the economic value of power generation to our society is the prices reflected on CAISO's market. If there are various times of day, days of the week, or month of the year, in which generation is marginally or negatively valued, the case for favoring noneconomic values such as recreation and the environment in the Commission's delicate balancing analysis may be relatively enhanced.[263] Knowing how Edison's generation of power has been valued by the CAISO market — which is about as fair an indicator of that power's social utility can be — is the starting point in evaluating whether there are times its energy is only marginally useful or even disfavored by our contemporary energy market.

For these reasons, we request that the Commission direct Edison to provide the complete historical record of its bids into the day-ahead CAISO market in Excel spreadsheet format on its relicensing website for stakeholders and the managing agencies to examine and evaluate as a necessary condition of moving forward with the pre-application process.

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[262] Dan Keverline, KR3 Managing Operator, 10FEB2021 TWG
[263] See KRB SD1 at 11-22

KRB IR2: TURBINE FLOW-EFFICIENCY FORMULA

The amount of water diverted by the project at Fairview Dam fluctuates over time between a minimum of zero cfs and a maximum of about 600 cfs, for at least two reasons germane to this proceeding: (1) proposed environmental and recreational mitigation measures may require the limitation of the amount of water Edison is permitted to divert; and (2) incoming flows above Fairview Dam may be insufficient to fill the diversion capacity.

In either case, it is important to know how much energy can be produced at a given rate of diversion. Since the relationship between the quantity of water diverted and the amount of energy the project produces is not linear, the full impact of mitigatory measures on generation, and the full value of generation to begin with, cannot simply be deduced by taking the operating capacity the project (36.8 MW) and multiplying by the percentage of the maximum flow (600 cfs) being diverted; there would be a missing efficiency quotient in the equation.

To fully capture these values, one requires a table or, for the most accurate representation, a formula that supplies us with the efficiency quotient: the ability to know exactly how much energy it produces at a given diverted flow between zero and 600 cfs.

The Commission is charged with balancing the claims of environmental and recreational mitigation against the economic value of power generation, but the latter cannot be captured and evaluated without knowing how much electricity is being produced at each potential (0-600) given flow. For these reasons, we request that Edison provide by June 01, 2022 a flow-efficiency formula or table (increments of 10 cfs) that tells us how much power it can generate at each potential flow in Excel spreadsheet format on its relicensing website for stakeholders and the managing agencies to examine and evaluate as a necessary condition of moving forward with the pre-application process.

KRB IR3: NFKR HOURLY HYDROLOGY, 1997-2021

It is axiomatic that one cannot capture and examine the impact of a hydroproject on a river without knowing how much water it takes out of that river. The USGS offers publicly available data for Gauges No. 11185500 and 11186000, which monitor diverted flows in the project's conveyance and spared flows in the riverbed below Fairview Dam, respectively. However, that data is only for the value of "daily average flow" — i.e., the arithmetic mean of values captured throughout any given day.

A daily average flow is a place to start evaluating a project's events, but it is a blunt instrument, and leaves out the project's more granular effects when viewed on an hourly basis — especially during those times of year when the diurnal is significant. Edison provides hourly data to the public in real time, but that data is quickly lost to the public, as there is no publicly available historical record of it.

At the April 29, 2021 TWG meeting, David Moore promised managing agents and stakeholders, who had been asking for the historical record of hourly flows at both gauges for months, that Edison was compiling that data and would provide it to the public in the Spring of 2022. We ask that the Commission instruct Edison to (belatedly) fulfill that promise and provide by December 31, 2022 historical hourly flows from both gauges in Excel spreadsheet format on its relicensing website. It is unreasonable to ask stakeholders to wait until the conclusion of the hydrology study to obtain this data.

KRB IR4: CREEK HYDROLOGY

The Commission has the authority to not reauthorize portions of a hydroproject on the grounds that their cost to the environment or recreation does not justify those portions' contribution to power generation.

The KR3 project encumbers not just the NFKR; it also encumbers two tributaries: Salmon and Cannell creeks. At the December 09, 2020 TWG meeting, David Moore explained that the purpose of these diversions is to supplement the main diversion of the NFKR at Fairview Dam. The amount of negative impact to the environment or recreation caused by the diversions on these tributaries may no longer satisfy contemporary standards depending on how much water they contribute to the project and hence how much developmental value they provide to society.

For these reasons, we ask the Commission to instruct Edison to provide by June 01, 2022 its hydrological records for the diversion of water from Salmon and Cannell Creeks in Excel spreadsheet format on its relicensing website for stakeholders and the managing agencies to examine and evaluate as a condition of moving forward with the pre-application process.

VI • OTHER STUDY REQUESTS

Benthic Macroinvertebrate Assessment (USFS)

EDISON: *Although SCE is not opposed to the adoption of a benthic macroinvertebrate assessment, it is unclear how the information collected in this proposed study would be utilized in the development of Project license requirements.*
Where water quality issues have been identified, studies were either previously conducted during the prior relicensing or have been adopted as part of the current relicensing. (PSP at 29.)
KRFFC: Edison's inability to imagine how the information obtained from this study could inform license conditions is unhelpful. Benthic macroinvertebrate (BMI) sampling has been deemed a best available science for evaluating river health and, as such, it has been used in numerous hydroproject licensing proceedings. Edison's sister IOU PG&E, for instance, has conceded that "the information from this [BMI] study proposal could be used to develop: Instream flow releases[; and] Site-specific water quality measures."[264] The same can be said here: The proposed study can help evaluate whether current minimum instream flow releases afford the attainment of adequate aquatic habitat and, by scientific implication, life — or whether they do not.

None of the alternative studies Edison references — past or proposed — involve BMI sampling. There are many dozens of parameters that can be studied to evaluate a waterway's health. Edison is proposing an extremely limited study of Temperature and Dissolved Oxygen during a single season. But both of those parameters have been more thoroughly evaluated in the prior proceeding and the 2002 Entrix study[265], and the monitoring that has been conducted in the meantime confirms the project's ongoing negative effect on those parameters.[266] BMI, by contrast, has never been studied in this river. "There are no available data about the benthic macroinvertebrate community within the three project bypass reaches," notes Edison.[267] Edison remains at a loss to explain how the results of the 2016 fish monitoring study demonstrate an adequate mitigation of project effects. The 2016 study revealed a tragic trout population decline of about 50% above Fairview Dam, but an astonishing, near-total decline of 97% below the dam.[268] Yet even in the face of this data, Edison has suggested no changes in its diversion of water out of the river for the next 40 years. Temp and D.O. studies will not provide much additional understanding of these project effects.

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[264] FERC eLibrary No. 20080925-5114 at Aquatic Macroinvertebrates PSP, 2 [.pdf 368]
[265] PAD at 5-43 through 5-48
[266] See *post*, Table 2: Recent Water Quality Sampling, NFKR
[267] PAD at 5-75
[268] PAD at 5-63

BMI is a more fundamental measure of project effects on river health and integrity. Macroinvertebrates are at the base of the riverine ecosystem and inarguably experience significant stress due to dramatic reduction of inflows of cool water. As the Commission has stated, "Benthic macroinvertebrates (BMI) are invertebrates that are retained by a 500-μmeter mesh and are associated with the bottom habitats. There are at least two reasons why they are an important component of water quality studies. First, they form a fundamental link between organic matter resources (e.g., algae, detritus, and leaf litter) and the fish. Second, the life history characteristics of individual species show adaptations to specific environmental characteristics. *The benthos are excellent environmental monitors that integrate information regarding their surroundings*."[269]

Since comparisons between natural and project-affected stretches of the dewatered reach help pinpoint effects from the project rather than nature, the BMI study should include "reference" sites above the influence of all three diversion points. Further, since BMI content is inherently sensitive to river conditions, and since any single sampling year may experience atypical environmental conditions (dry year *v.* wet year, low water *v.* high water, cold water *v.* warm water), sampling should be accomplished in at least two different years in an attempt to establish contingent baseline conditions in the dewatered reach.

EDISON: *While the request correctly indicates that impoundments have the potential to alter water quality, the impoundment pool formed by Fairview Dam is small, has minimal storage capacity, and has a short residence time.* (PSP at 29.)
KRFFC: Edison fails to cite to the record in support of its assertion that the Fairview Dam impoundment has "short residence time." Further, it is not simply the impoundment that alters water quality below Fairview Dam; the diversion itself has a greater capacity for negative effects by greatly reducing the water quantity — and thus water quality — below the dam.

EDISON: *Data collected during the prior relicensing effort do not indicate that the pool itself is a major source of warming in the NFKR, and the ongoing effect of the Project on temperature in the NFKR is being addressed under WR-1 Water Quality.* (PSP at 29.)
KRFFC: The project is negatively altering the quality of the water and fish habitat below Fairview Dam. The pool is inarguably a source of warming; the diversion another. NEPA warns against analyzing project effects in a piecemeal manner that fails to capture the overall real-world effect of the project, which is the negative alteration of water quality and fishery health. The BMI study offers the potential for more fundamental insight of project

[269] FERC eLibrary No. 20060224-4000 at 85 (italics added)

effects on the river below Fairview Dam — and on the two tributaries encumbered by the project, as well (a point unconsidered by Edison).

EDISON: *Similarly, Project effects on trout populations are addressed by (1) an existing population monitoring plan, and (2) minimum flows, as required by the current license, intended to maintain trout and native fish habitat throughout the summer.* (PSP at 29.)
KRFFC: Edison fails to consider that (1) has shown (2) to be inadequate. A more robust minimum flow regime is plainly in order for this river; the question is to what degree. A BMI study is more likely to help inform the answer to that question than limited, cumulative Temp and D.O. sampling.

Table 2: Recent Water Quality Sampling, NFKR[270]

DATE	TEMP ABOVE	TEMP BELOW	D.O. ABOVE	D.O. BELOW	COND ABOVE	COND BELOW	FLOW ABOVE	FLOW BELOW
7/3/2021	20.0	23.7	7.4	6.4	83	254	144	102
7/17/2021	19.3	23.3	7.0	6.2	157	194	126	86
8/7/2021	18.7	22.9	7.7	6.8	166	199	113	71
GOAL	<20.0	<20.0	>8.0	>8.0	<200	<200		

(ABOVE=Above Fairview Dam, BELOW=Below Fairview Dam, TEMP=Temperature (C), D.O.=Dissolved Oxygen (mg/L), COND=Conductivity (μS/cm), FLOW=Average Daily Flow (cfs))

[270] Adventure Scientists, with USFS, NPS & USFWS, "Wild & Scenic Rivers Water Quality" at https://experience.arcgis.com/experience/981d82b6126743dc8b053ea67aa2497d

VII • Submitted By Kern River Boaters

This document was generated through engagement with and consideration of the Directors of Kern River Boaters, its Relicensing Committee, the KRB membership group, conservationists, the local community, and countless seasonal, travelling, local, weekender, old, new, and wayward whitewater recreators, all of whom deeply love the Wild and Scenic North Fork Kern.

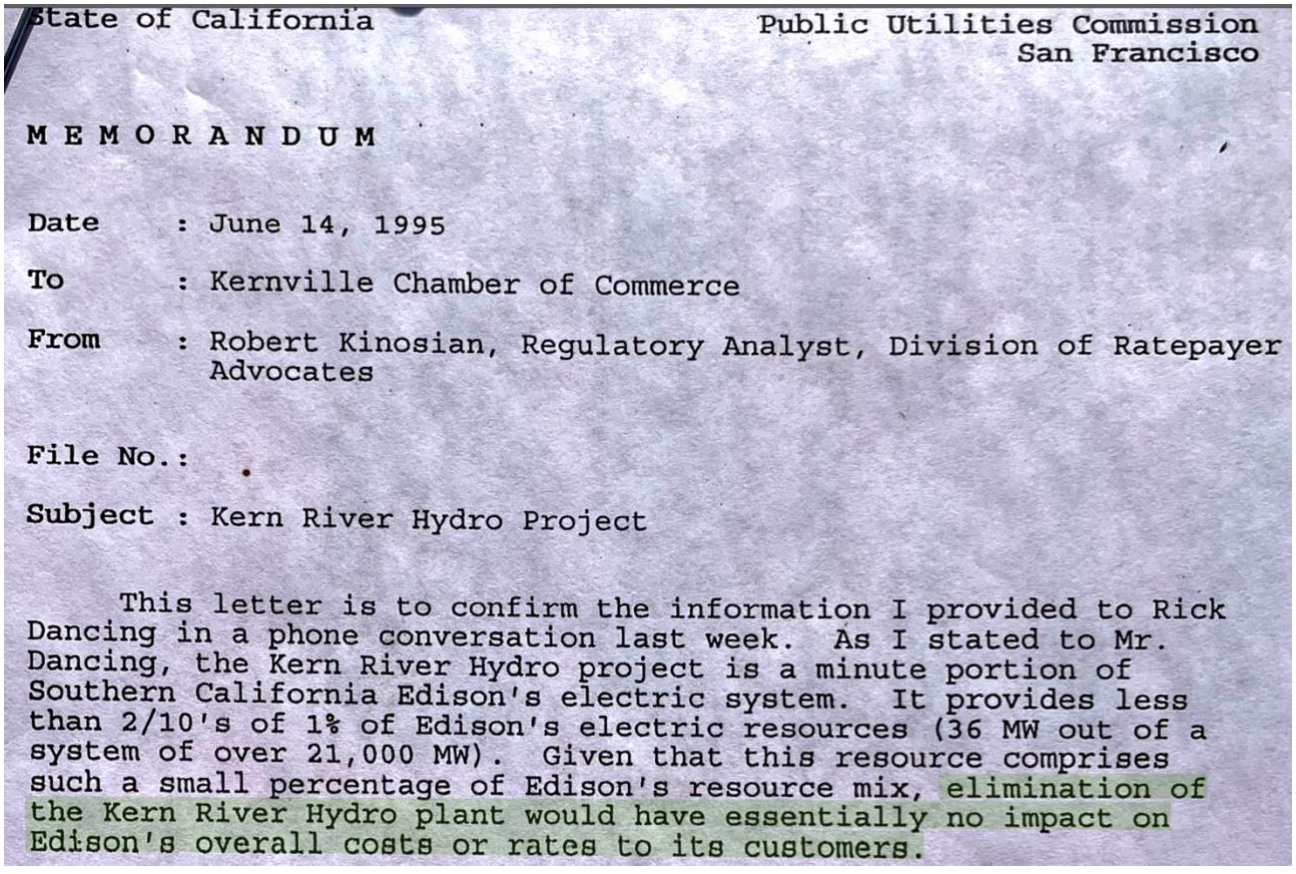
Respectfully submitted,

//s// ED
Elizabeth Duxbury, President

//s// JLP
José Luis Pino, Vice President

//s// BD
Brett Duxbury, Secretary-Treasurer

DATED: June 03, 2022



State of California — Public Utilities Commission
San Francisco

MEMORANDUM

Date : June 14, 1995

To : Kernville Chamber of Commerce

From : Robert Kinosian, Regulatory Analyst, Division of Ratepayer Advocates

File No.:

Subject : Kern River Hydro Project

This letter is to confirm the information I provided to Rick Dancing in a phone conversation last week. As I stated to Mr. Dancing, the Kern River Hydro project is a minute portion of Southern California Edison's electric system. It provides less than 2/10's of 1% of Edison's electric resources (36 MW out of a system of over 21,000 MW). Given that this resource comprises such a small percentage of Edison's resource mix, elimination of the Kern River Hydro plant would have essentially no impact on Edison's overall costs or rates to its customers.

VIII • Citations Key

KRB SD1 = Kern River Boaters' Comments, Study Requests, And Information Requests In Response To Preliminary Application Document And Scoping Document One, FERC eLibrary No. 20220120-5139, available: https://www.kernriverboaters.com/s/KRB_PAD_COMMENTS_FINAL.pdf

KRB Allen Response = FERC eLibrary No. 20220304-5058, available: https://www.kernriverboaters.com/s/KRB_KR3_ALLEN_RESPONSE.pdf

Allen Letter = FERC eLibrary No. 20220224-5109

1996 License Order = 77 FERC § 61,313

1982 USFS NFKR W&SR FEIS = available: https://drive.google.com/file/d/1SJCruHoRxwOniEl6UUeuWHXl3iDJ33wf

1994 USFS N&SFKR W&SR FEIS = available: https://drive.google.com/file/d/1-spMefl-icUJmvY450dKy7jZvkKQ7Ozs

1994 USFS N&SFKR W&SR ROD&CMP = available: https://drive.google.com/file/d/1n0D8equMZaOkwLNDGenEkV54n1WACWkp

1995 USFS NPS CDFW UKBFMP = available: https://drive.google.com/file/d/10UGxbYFWArx5FZbV8JNM34PObFgfu8r-

1996 EA = FERC eLibrary No. 19960409-0312, available: https://drive.google.com/file/d/1ffpmCehSI6e2tRGSMmZW7XNazpSdpKSZ

1998 USFS NOD FONSI = available: https://drive.google.com/file/d/16SJJ4D86u9UTkAh1jmYd9Da-RBmg1KG3

2002 Whitewater Settlement = FERC eLibrary 20030106-0377

1994 Whitewater Study = FERC eLibrary No. 19940802-0010, available: https://drive.google.com/file/d/1x70oGrjxECN9LKfdoUimLSXMylZHp0mF