



**Federal Energy
Regulatory
Commission**

**Office of
Energy
Projects**

November 2008

FERC/EIS-0225D

Draft Environmental Impact Statement

Appendix A



**South Feather Power Project
FERC Project No. 2088-068, California**

**Federal Energy Regulatory Commission
888 First Street N.E.
Washington, DC 20426**

**APPENDIX A—SOUTH FEATHER POWER PROJECT MITIGATION AND
MONITORING SUMMARY**

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility		
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring	
General – Potential effect of project operation and maintenance on sensitive resources	Measure 33 - Conduct annual employee awareness training	Ongoing: Annual employee awareness training to familiarize staff with special-status, aquatic, wildlife, and plant species, including noxious weeds/non-native invasive plants, as well as sensitive locations including PACs, potential erosion areas, and cultural sites to allow avoidance/minimization of impacts			South Feather	
General – Potential impacts on special-status species	Measure 35 - Annually review with the Forest Service the list of species within the project area that are formally proposed for listing or are	Ongoing: Annually review list of species and prepare a study plan to reasonably assess the effects of the project on the species, recommend reasonable resource management measures,	Ongoing: Annually consult with Forest Service regarding planned operation and maintenance projects on Forest Service lands and Forest Service		South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	listed under federal or state endangered species acts or are Forest Service Sensitive, Watch List, or Management Indicator Species	and provide an implementation schedule, where appropriate, if an added species has the potential to be adversely affected by the project	activities that might affect the project.		
General – Potential project-related impacts on Forest Service lands	Forest Service revised Condition No. 3 - Consultation with the Forest Service to determine measures needed to ensure protection of Forest Service lands affected by the project. <i>This measure is modified to require that the meeting date be approved</i>	Ongoing: Annually; the date of the consultation meeting would be mutually agreed to by the South Feather and the Forest Service but in general would be held 60 days prior to the beginning of the recreation season	Ongoing: Meeting would include review of all monitoring activities associated with all measures implemented on and off of National Forest System lands	South Feather	South Feather

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	<i>by FWS, Cal Fish & Game, the Water Board, and any other interested agencies.</i>				
General – Altered seasonal geohydrography	Forest Service revised Condition No.18, part 2 - Determine water year type annually and apply to appropriate minimum flow release schedule and other measures that are dependent on water year type	Ongoing: Annual determination of water year type and application of appropriate minimum flow release schedule			South Feather
Geo/Soils – Blockage of downstream transport of large woody debris	Measure 56 - Return large wood to stream below Little Grass Valley and Lost Creek	Ongoing: Return large wood to stream annually by allowing it to pass over the spillways			South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	dams				
Geo/Soils – Reduced flows downstream of project (diversions)	Measure 57 - Provide supplemental streamflows in Lost Creek for geomorphic purposes.	Ongoing: Where facility modifications are needed to release the specified flows, complete such modifications as soon as reasonably practicable, but within 3 years. In the interim, make a good faith effort to release specified flows within the capabilities of the existing facilities.			South Feather
Geo/Soils – Obstruction of downstream sediment transport by project dam	Measure 58 - Continue Slate Creek sediment pass-through program.	One-time: File report, including recommendations, with Commission within 2 years of license issuance. Ongoing: Continue to			South Feather

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Water – Potential effect of diversions on downstream water temperatures in Slate Creek	Measure 37 - Install and maintain a gaging station, monitor water temperature and cease diversions at Slate Creek diversion dam when mean daily water temperature reaches 20°C to protect downstream cold freshwater habitat.	implement the approved program through term of license One-time: Installation gaging station. Ongoing: Cease diversions when mean daily water temperature reaches 20°C	Ongoing: Maintain gaging station and monitor water temperature daily	South Feather	South Feather
Water – Potential effects of hazardous materials spills	Measure 38 - Develop and implement a Hazardous	One-time: Develop and file Hazardous Materials Management Plan		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
on project lands and waters	Materials Management Plan	Ongoing: Implement the approved plan through term of license			
Aquatic – Potential effects of modified operations during drought conditions	Forest Service revised 4(e) No. 18, part 3 - Notify the Forest Service and other interested governmental agencies of South Feather’s drought concerns; consult with agencies to develop operational plans to manage drought conditions.	Ongoing: Notification by March 15 of the second or subsequent dry water year; by May 1 of these same years, South Feather would consult with the agencies to discuss operational plans to manage the drought conditions. If unanimous agreement is not reached, South Feather would submit the revised proposed plan that incorporates as many agency issues as possible to FERC, as well as both assenting and dissenting		South Feather	

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
		comments, should they exist, request expedited approval, and implement the proposed plan until directed otherwise by FERC			
Aquatic – Potential project O&M-related impacts on FYLF	Measure 40 – Avoidance of high flow releases from project dams associated with sediment pass-through, valve exercises, or supplemental flow releases for channel maintenance or recreational purposes during critical periods for FYLF (except for the Little Grass	Ongoing: Roughly April 15 - October 31, annually	One-time: Install, in consultation with the Forest Service and state agencies, continuous water temperature monitors near the Woodleaf and Forbestown powerhouses to record from May 1 through September 15 annually to ensure that recreation flow releases occurs before water temperatures are suitable for FYLF	South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Aquatic – Potential impacts on (wild) fisheries	Valley dam reach) Forest Service revised 4(e) No. 18, part 6 - Develop and implement a wild fish supplementation program for project-affected fisheries in the South Fork Feather River, Slate Creek, and in Sly Creek and Lost Creek reservoirs	One-time: Develop and file a wild fish supplementation program Ongoing: Implement program through term of license unless fish exclusion devices are required by the Commission, at which point, the plan would be null and void	breeding	South Feather	
Aquatic – Potential impact on fish populations in project bypassed reaches	Forest Service revised 4(e) No. 19, part 1 – Develop and implement a fish population	One-time: Develop and file a fish population monitoring plan Ongoing: Implement plan through term of	Ongoing: Surveys would be conducted at 8 locations previously established during the relicensing in 2	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	monitoring plan approved by the Forest Service	license	<p>successive years and begin in the fifth full year after implementation of new license streamflows.</p> <p>Fish surveys would be conducted in years 5, 6, 11, 12, 17, 18, 23, 24, and 29 after MIFs are implemented in each survey reach or at a frequency jointly agreed to by the agencies. If sampling is scheduled in years with high peak flows, it may be postponed 2 years to avoid potential confounding effect of high peak flows on fish</p>		

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Aquatic - Potential impact on macro-invertebrate populations in project bypassed reaches	Forest Service revised 4(e) No. 19, part 3) – Develop and implement a benthic macroinvertebrate monitoring plan	<p>One-time: Develop and file a benthic macroinvertebrate monitoring plan</p> <p>Ongoing: Implement plan through term of license</p>	<p>recruitment and populations</p> <p>Ongoing: Surveys would be conducted in the same years as fish population monitoring, unless an alternative monitoring schedule is agreed upon with the agencies</p>	South Feather	South Feather
Terrestrial – Potential project O&M-related impacts on bats	Measure 42 - Retain a qualified bat exclusion contractor when replacing or retrofitting any bat exclusion devices	<p>Ongoing: Maintain all bat exclusion devices in proper functioning condition and implement through term of license</p>		South Feather	
Terrestrial - Potential project impacts on	Forest Service revised 4(e) No. 18, part 5 - Map	<p>One-time: Map FYLF habitat and develop stage-discharge curves</p>		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
FYLF	FYLF habitat, develop stage-discharge curves, and develop ramping rates for each reach	for each reach and develop ramping rates for each reach that would meet specified stage and velocity requirements Ongoing: Implement through term of license			
Recreation – Potential increases in project-related recreation use	Measure 45 (as modified October 8 and October 12, 2007) - Facility master plans schematic for the Little Grass Valley and the Sly Creek reservoir recreation areas	One-time: Develop and file facility master plans schematic with the Commission within 1 year of license issuance for Little Grass Valley, and within 3 years of license issuance for Sly Creek Ongoing: Implement plans through term of license		South Feather	
Recreation –	Measures 45 –	One-time: Develop		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Potential impacts of recreational development on Forest Services lands	Development of individual site development plans for each existing recreation facility on Forest Service lands within the existing project boundary	and file site development plans for Little Grass Valley reservoir recreation area facilities within 3 years of license issuance; for Sly Creek reservoir recreation area facilities within 5 years of license issuance; and for Peninsula Tent campground within 5 years of license issuance Ongoing: Implement plans through term of license			
Recreation – Increased recreational boating and angling use at	Measure 45 – Construction of a multi-use trail below Little Grass Valley dam	One-time: Construct a multi-use trail within 3 years of license issuance and in consultation with the			South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
the South Fork Feather River		Forest Service			
Recreation - Potential increases in project-related recreation use	Measure 46 (as modified October 8, 2007) - Little Grass Valley and Sly Creek reservoir recreation area Routine Maintenance and Operating Plan	<p>One-time: File final Routine Maintenance and Operating Plan with the Commission within 6 months of license issuance</p> <p>Ongoing: Implement plan through term of license</p>		South Feather	
Recreation - Potential changes in recreational use of project area	Measure 47 - Conduct recreational use report at developed recreational facilities at Little Grass Valley and Sly Creek reservoir recreation areas	<p>One-time: Provide a draft report to the Forest Service for 60-day review</p> <p>Ongoing: File the report concurrent with FERC Form 80 Recreation Report</p>	<p>Ongoing: Every 6 years during the recreation season (considered to extend from May 15 through September 15 at the Little Grass Valley reservoir recreation area and from April 15, or as soon as weather permits</p>	South Feather	South Feather

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Recreation – Potential changes in recreational use of project area	Measure 48 - conduct a report on recreational user surveys at developed recreational facilities at Little Grass Valley and Sly Creek reservoir recreation areas	<p>One-time: Provide a draft of the final report to the Forest Service for a 60-day review</p> <p>Ongoing: File the report, including evidence of consultation, with the Commission concurrent with every third filing of FERC Form 80 Recreation Report</p>	<p>thereafter, to September 15 at Sly Creek reservoir recreation area)</p> <p>Ongoing: Every 18 years</p>	South Feather	South Feather
Recreation – Potential effect of water level elevation on recreational	Measure 49 –Water level maintenance at Little Grass Valley reservoir	<p>Ongoing: Maintain water level at Little Grass Valley reservoir no lower than elevation 5,023 feet msl through September 15 in all</p>		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
access		water years, except dry water years, to facilitate the use of Little Grass Valley boat launch facilities. In dry water years, South Feather proposes to maintain Little Grass Valley reservoir as high as possible through Labor Day weekend			
Recreation – Potential effects of reduced streamflow on recreation opportunities	Measure 50 – Provision of supplemental streamflow in Little Grass Valley dam reach	Ongoing: Provide supplemental streamflow in Little Grass Valley dam reach for recreational boating after September 15 each year. Where facility modifications are needed to release the specified flows, complete such modifications as soon		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Recreation - Potential effects of reduced streamflow on recreation opportunities	Measure 51 - Provision of supplemental streamflow downstream of the South Fork diversion dam	as reasonably practicable, but within 3 years. In the interim, make a good faith effort to release specified flows within the capabilities of the existing facilities Ongoing: Provide supplemental streamflow downstream of the South Fork diversion dam in the spring of above normal and wet water years for recreational purposes. Recreational streamflow would have a target streamflow of no less than 190 cfs and no more than 700 cfs measured continuously over 2 weekend days,	Ongoing: Install, in consultation with the Forest Service and state agencies, a continuous water temperature monitor near the Woodleaf powerhouse to record from May 1 through September 15 annually to ensure that the flow occurs before water temperatures are suitable for FYLF	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
		starting around April 1 and lasting through June 15, or no later than when the average water temperature reaches 13°C. <i>This measure is modified to require that supplemental streamflows be discontinued if the water temperature reaches 12°C.</i>	spawning		
Recreation - Potential effects of reduced streamflow on recreation opportunities	Measure 52 - Provision of supplemental streamflow at Forbestown diversion dam reach	Ongoing: Provide supplemental streamflow in the spring during above normal and wet water years at Forbestown diversion dam reach to improve opportunities for Class IV and V whitewater boating in the spring. Recreational	Ongoing:	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Recreation - Potential effects of streamflow on recreation	Measure 53 – Provision of streamflow information to the	streamflow would have a target streamflow of no less than 215 cfs and no more than 400 cfs measured continuously over two weekend days, from April 1 through June 15, but no later than when the average water temperature reaches 13°C. <i>This measure is modified to require that supplemental streamflows be discontinued if the water temperature reaches 12°C.</i>			South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
opportunities	public	South Fork and Forbestown diversion dams; Lost Creek downstream of Lost Creek dam; and Slate Creek downstream of Slate Creek diversion, from May 1 through November 30; within 1 year of license issuance			
Recreation – Potential public safety hazard at recreational access sites	Measure 54 - Seasonal installation of public safety buoys in Little Grass Valley and Sly Creek reservoirs	Ongoing: Annually install public safety buoys after the roads are cleared of snow and maintain throughout the summer recreation season and remove after September 15		South Feather	
Cultural - Potential project-related effects on cultural	Measure 44 - Historic Properties Management Plan. <i>This measure is</i>	Ongoing: Implement HPMP upon license issuance	Ongoing: HPMP includes procedures for monitoring cultural resource	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
resources	<i>modified to implement the HPMP provided in the application, with staff's additional measures.</i>		sites, periodic reporting and meetings, periodic review and revision		
Land Use – Potential project operation and maintenance-related effects on land management	Measure 55 - Fire Prevention and Response Plan	<p>One-time: Prepare and file plan with the Commission within 1 year of license issuance</p> <p>Ongoing: Implement a fire prevention and response plan, including measures for fuels treatment/vegetation management, prevention, emergency response preparedness, reporting, fire control/extinguishing.</p>		South Feather	

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
Aquatic - Reduced flows downstream of project diversions	Implement minimum flows in each reach as described in South Feather's alternative to Forest Service 4(e) 18, part 1 ^a	Ongoing: Implement minimum flows in each project-affected reach for term of license		South Feather	
Aquatic - Confirmation of compliance with minimum streamflows	Operate, maintain, and modify (if necessary) gages needed to determine river stage and minimum streamflows [Forest Service 4(e) No. 18, part 4 and Cal Fish & Game 10(j) No. 7, part 6] ^a	One-time: Prepare and file plan with the Commission within 1 year of license issuance	Ongoing: maintain and operate gages for term of license	South Feather	South Feather
Aquatic - Confirmation of	Develop and implement a plan	One-time: Develop a plan to provide real-	Ongoing: Implement	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
compliance with minimum streamflows	to provide real-time information on flows and water temperatures to DWR [staff-developed measure] ^a	time information on flows and water temperatures to assist with DWR Oroville operations	the plan		
Aquatic - Potential effect of project dam on fish passage	Reserve NMFS authority to prescribe fishways [NMFS 10(j) measure] ^a			South Feather	
Terrestrial – Potential project-related alteration of riparian communities	Treat and monitor selected areas to reduce riparian encroachment [Forest Service 4(e) No. 19, part 3 and Cal Fish & Game 10(j) No. 7, part 3]. ^a <i>Modified to include</i>	Ongoing: Treat and monitor selected areas between the South Fork diversion dam and Ponderosa reservoir to reduce riparian encroachment, if warranted based on FYLF monitoring results		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	<i>treatment only if warranted based on FYLF monitoring results.</i>				
Terrestrial - Potential project-related alteration of invasive/nuisance plant communities	Develop and implement an invasive weed management plan [Forest Service 4(e) No. 26] ^a	<p>One-time: Develop and file an invasive weed management plan</p> <p>Ongoing: Implement plan through term of license</p>		South Feather	
Terrestrial - Potential project-related impacts on sensitive wildlife	Maintain and operate all devices and measures for the protection of wildlife along the Miners Ranch conduit that are deemed necessary by Cal Fish & Game and other interested agencies [Cal Fish & Game	<p>Ongoing: Maintain and operate all devices and measures for the protection of wildlife along the Miners Ranch conduit through term of license</p>		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
	10(j) No. 9] ^a				
Terrestrial - Potential project-related impacts on sensitive wildlife	Prepare a Biological Evaluation before taking actions that may affect Forest Service special status species on National Forest System lands, update the Bald Eagle Management Plan and develop and implement a bat management plan [Forest Service 4(e) No. 25] ^a	<p>One-time: Prepare and file a Biological Evaluation, updated Bald Eagle Management Plan, and a bat management plan</p> <p>Ongoing: Implement the plans through term of license</p>		South Feather	
Terrestrial - Potential project-related impacts on sensitive	Conduct reach - level surveys for FYLF [staff-developed		Ongoing: Surveys would be done in years 1-5 and every 10 years thereafter		South Feather

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
wildlife	measure] ^a		supplemented by representative surveys in years 6-10 and every 10 years thereafter		
Recreation – Inconsistency with other area management plans	Recreation Facility Master Plan specified by the Forest Service [Forest Service 4(e) No. 20, part 1] ^a	<p>One-time: File Recreation Facility Master Plan with the Commission within 1 year of license issuance for Little Grass Valley reservoir recreation area and within 3 years of license issuance for Sly Creek reservoir recreation area</p> <p>Ongoing: Implement plan through term of license</p>		South Feather	
Recreation - Potential changes in	Recreation measures specified by the Forest	<p>One-time: File Recreation Facility Annual Operation</p>	<p>Ongoing: Annual recreation facility operation</p>	South Feather	South Feather

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
recreational use of project area and facilities	Service [Forest Service 4(e) No. 20, part 2] ^a	<p>Maintenance Plan with the Commission within 1 year of license issuance</p> <p>Ongoing: Implement plan through term of license</p> <p>Ongoing: Support reservoir recreation consistent with lake levels required by license conditions</p> <p>Ongoing: Collaboration on current and future public interpretive programs implemented through term of license</p>	maintenance and inspection		
Land Use - Project operation and maintenance-	Develop and implement a fuel treatment/vegetation management plan	One-time: Develop and file the plan with the Commission within 1 year of license		South Feather	

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Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
related effects on land management	[Forest Service 4(e) No. 22] as part of South Feather's fire prevention and response plan ^a	issuance Ongoing: Implement plan through term of license			
Potential degradation of access roads needed to safely maintain project facilities	Road management plan [Forest Service 4(e) #28] ^a	One-time: Develop and file a road management plan with the Commission within 1 year of license issuance, after Forest Service approval Ongoing: Implement plan through term of license		South Feather	
Potential visual effects on the surrounding landscape	Visual management plan [Forest Service 4(e) #27] ^a	One-time: Develop and file a visual management plan within 60 days prior to any ground-disturbing activity on National		South Feather	

Impact	Mitigation	Mitigation Implementation Duration	Monitoring Duration	Mitigation Responsibility	
		One-time or Ongoing	One-time or Ongoing	Implementation	Monitoring
		Forest System lands Ongoing: Implement plan through term of license			

^a Staff alternative; includes additional measures identified by staff based on agency and non-governmental organization recommendations and our analysis.