EXECUTIVE SUMMARY

The Western Area Power Administration's (Western) Central Valley Project (CVP) transmission system forms an integral part of the interconnected Sacramento area transmission grid. Regional growth has led to increased demand for electric power in the Sacramento area. Power system studies conducted by Sacramento power agencies, organizations, and utilities have indicated that reliability of the power system could be at risk due to voltage instability. This Sacramento Area Voltage Support (SVS) Environmental Impact Statement (EIS), prepared pursuant to the *National Environmental Policy Act* of 1969 (NEPA) presents Western's analysis of the environmental effects from the voltage support system additions and improvements identified for the Proposed Action and alternatives.

ES.1 WESTERN'S BACKGROUND

The Sacramento area is within the Sierra Nevada Region (SNR) which maintains and operates numerous substations and more than 1,200 miles of transmission lines. These transmission lines are interconnected to other Sacramento area utility transmission lines, including those owned and operated by the Sacramento Municipal Utility District (SMUD). By law, Western first markets power that is in excess of the Federal project requirements to preference customers such as Federal and state agencies, Native American tribes, electric cooperatives, municipal utilities, public utility districts, irrigation and water districts.

Western sells wholesale electricity to more than 70 customers in central and northern California and Nevada as part of the Central Valley Project (CVP) and the Washoe Project. Much of that power is allocated and delivered to five major customers: SMUD, Silicon Valley Power, and the cities of Redding, Roseville, and Palo Alto.

ES.2 VOLTAGE SUPPORT

Voltage support consists of elements of the electrical power system that help sustain or keep the electrical system operating to meet the long-term load demand. These elements include additional generation (new power sources—especially those at or near the load), increased transmission capacity, and improved system equipment.

ES.3 NEED FOR A SOLUTION

Population growth and development in the Sacramento area have steadily increased load demand for electric power. The increased demand has reduced the security and reliability of the interconnected transmission system. Security refers to the ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements such as a substation. Reliability is the assessment of the frequency, duration, and magnitude of interruptions for a given power system. The power system security and reliability problems became evident to California residents as rolling blackouts hit the state in 2001. Although a lack of generation was a major cause, increased demand on the interconnected electrical transmission system resulted in system overloads, and played a part in blackouts, including those in the Sacramento area. Increased transmission capacity, therefore, must be part of any long-term solution.

Power system studies conducted by the Sacramento Area Transmission Planning Group (SATPG) and the River City Transmission Group (RCTG) concluded that transmission additions in the Sacramento area are necessary to alleviate voltage sag and ensure power system reliability. Results of the first phase of the SATPG study indicated that construction of a new 230,000-volt (230 kilovolt [kV]) circuit could provide short-term (3 to 5 years) system support to the region (SATPG 2000). The study concluded that long-term solutions (greater than 5 years) for area transmission security also must be developed. These solutions must include construction of additional local generation or 500-kV transmission line options. Conclusions from the RCTG draft report also supported the need for additional transmission infrastructure to meet load growth and to provide for the transmission of future generation (RCTG 2002-Draft).

This Draft EIS analyzes environmental impacts of alternatives identified for improvement of electric system reliability and voltage support for the Sacramento area. Findings from this Draft EIS will provide a basis for decisions on whether to proceed and, if so, how to proceed. Western would implement appropriate solutions under Reclamation Law, which includes the *Central Valley Project Act*.

ES.4 PUBLIC INVOLVEMENT

Public involvement is a vital part of the decision-making process for this SVS EIS. Western developed a public involvement program to provide multiple opportunities for comment during the SVS EIS process of public

scoping, alternative formulation, alternative evaluation, and decision-making. The program is intended to guide Western through a collaborative, systematic, decision-making process with four primary purposes:

- Share information with the interested public.
- Gather information from the public.
- Identify public concerns and issues.
- Develop and maintain credibility.

During the period of September 12, 2000 through September 21, 2000, Western's SNR conducted a series of four scoping meetings in Lodi, Marysville, and Folsom, California. Public scoping comments were collected from August 8 through October 2, 2000. Western held two public workshops (March and September 2001) to address public comments on the selection of alternatives under consideration. Western plans to hold three public hearings after the United States Environmental Protection Agency (EPA) publishes the Notice of Availability (NOA) for the Draft SVS EIS. The public hearings will be held before the conclusion of the 45-day public comment period ends.

ES.5 ALTERNATIVE DEVELOPMENT

Western identified five broad alternative categories (new power generation, demand-side management (DSM), distributed generation, new transmission, and transmission upgrades) to consider in the Notice of Intent (65 FR 48496). During the subsequent four-phased alternative development process, the alternatives of new power generation, distributed generation, and DSM were eliminated from detailed review. New power generation and distributed generation alternatives would not solve short-term voltage support and reliability issues. DSM would be more applicable to the distribution of electricity, and the local utilities have implemented programs to decrease the electricity load during peak-use hours. Western believes that in the short term, imposing regulations of this type would not solve the reliability issues.

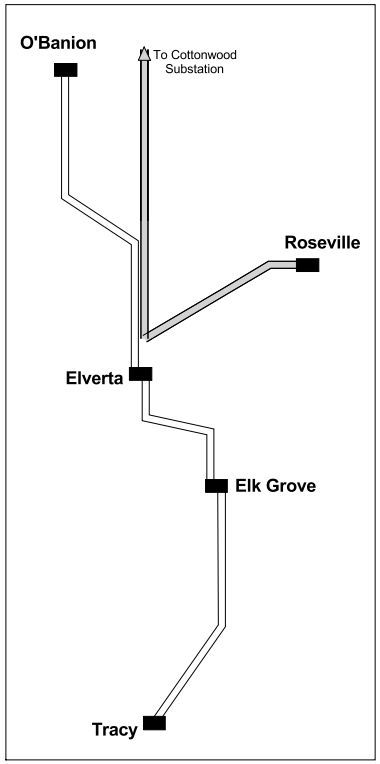
ES.6 ALTERNATIVES EVALUATED

The results of public scoping meetings, workshops, meetings with agencies, and earlier studies by Western and area utilities helped to develop a range of alternatives for analysis. Figures ES-1 and ES-2 present an illustration of the five alternatives analyzed and their locations within the study area. Each segment is divided into one-mile sections marked by numeric mileposts (MP), each segment beginning with MP 0.0. Mileposts are estimated distances. Each alternative is represented by route segments (Segments A through H) that represent specific activities. The alternatives involve three types of project activities:

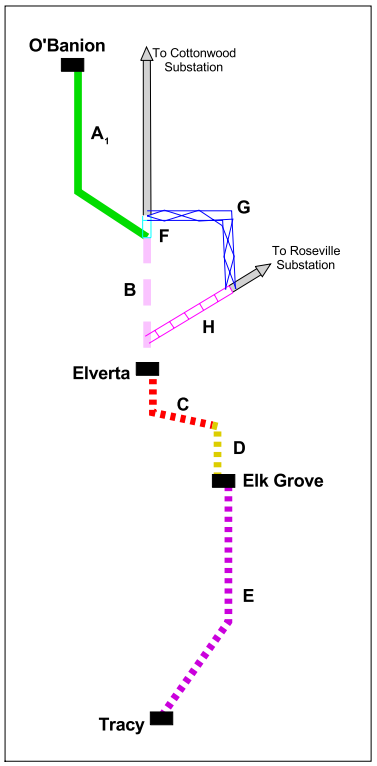
- ***New construction*** of transmission lines would include designing and building new structures and installing new conductors. New construction would occur on existing right-of-ways (ROWs) where possible, or require the acquisition of new ROWs in parallel with existing ROWs.
- ***Realignment*** would include route deviations from Western's existing transmission lines at two locations. The first realignment would avoid encroachment of the Pleasant Grove Cemetery and the second realignment would avoid residential areas.
- ***Reconductoring*** would consist of replacing the existing transmission line conductors (wires) with higher capacity conductors. In general, the existing ROWs would be used and few new structures would be needed.

Project activities associated with each of the five alternatives are summarized in Table ES-1 and described below.

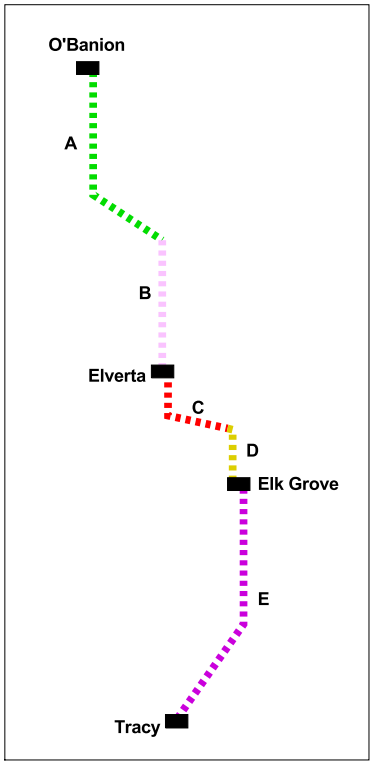
- ***The Proposed Action*** would consist of 1) reconductoring a double-circuit, 230-kV transmission line from Elverta Substation to Tracy Substation; 2) constructing a new double-circuit, 230-kV transmission line from O'Banion Substation to Elverta Substation; and 3) realigning the transmission line near Pleasant Grove Cemetery between the O'Banion and Elverta substations and a portion of the Cottonwood–Roseville single-circuit, 230-kV transmission line.
- ***Alternative 1—Reconductoring O'Banion Substation to Tracy Substation*** would consist of reconductoring a double-circuit, 230-kV transmission line from O'Banion Substation to Tracy Substation.
- ***Alternative 2—New Transmission O'Banion Substation to Elverta Substation*** would consist of constructing a new double-circuit, 230-kV transmission line from O'Banion Substation to Elverta Substation and realigning the transmission line near Pleasant Grove Cemetery and a portion of the Cottonwood–Roseville single-circuit, 230-kV transmission line.
- ***Alternative 3—New Transmission Elk Grove Substation to Tracy Substation*** would consist of constructing a new double-circuit, 230-kV transmission line from Elk Grove Substation to Tracy Substation.
- ***No Action Alternative***—Under the No Action Alternative, operation of the existing transmission line system would continue unchanged. Western would not develop or build additional transmission lines or substation facilities in the study area relative to voltage support.



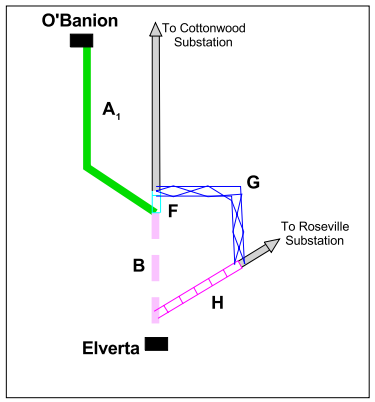
Existing 230-kV Transmission Line System



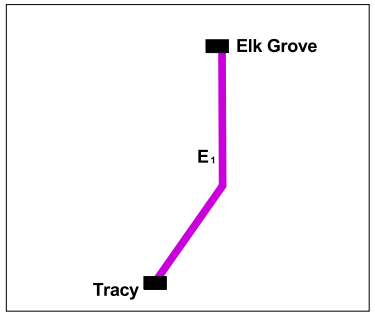
Proposed Action



Alternative 1



Alternative 2



Alternative 3

Existing 230-kV Transmission Line

New Construction Within New ROW

New Construction Within Existing ROW

Realignment

Abandonment

Reconductoring

Substation

Segments within Proposed Action and Alternatives

Proposed Action	: A_1, B, C, D, E, F, G, H
Alternative 1	: A, B, C, D, E
Alternative 2	: A_1, B, F, G, H
Alternative 3	: E_1

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Figures not to Scale

SACRAMENTO AREA VOLTAGE SUPPORT EIS

FIGURE ES-1
General Layout of Proposed Action and Alternatives

Summer 2002

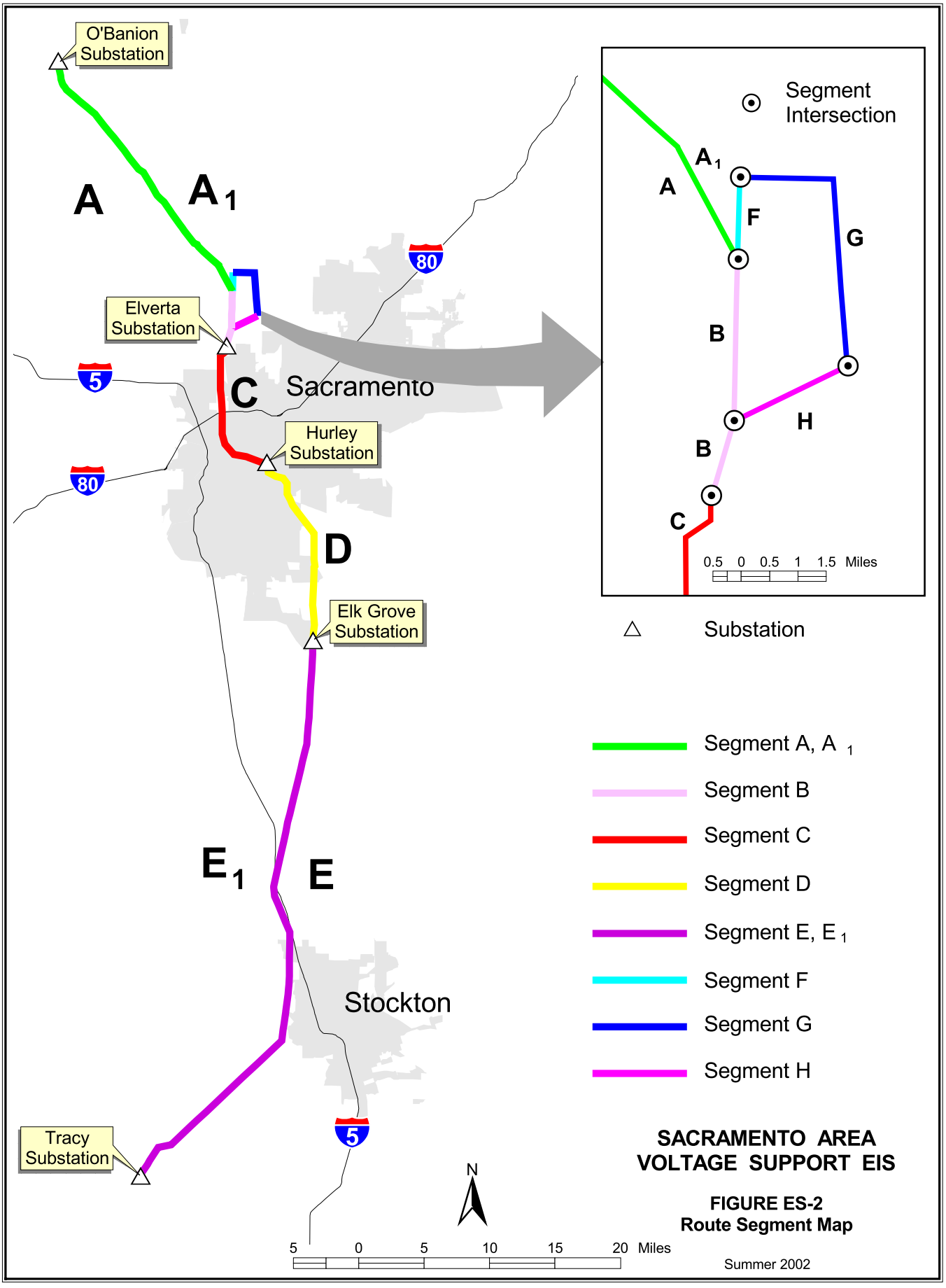
O'Banion Substation
A
A 1
Elverta Substation
C
Sacramento
Hurley Substation
D
Elk Grove Substation
E 1
E
Stockton
Tracy Substation
80
5
Segment Intersection
A 1
A
F
G
B
H
B
C
0.5 0 0.5 1 1.5 Miles
Substation
Segment A, A 1
Segment B
Segment C
Segment D
Segment E, E 1
Segment F
Segment G
Segment H
N
5 0 5 10 15 20 Miles
SACRAMENTO AREA VOLTAGE SUPPORT EIS
FIGURE ES-2
Route Segment Map
Summer 2002

Table ES-1. Activities for the Proposed Action and Alternatives

Alternative	Specific Operations
Proposed Action: New Transmission O'Banion Substation to Elverta Substation; Realignments; Reconductoring Elverta Substation to Tracy Substation Construct 26.6 miles of new 230-kV double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B) Realign 230-kV single-circuit transmission line. (Construct transmission line around the Pleasant Grove Cemetery, construct 5 miles of Segment G; abandon 3.6 miles of Segments F and H) Reconductor 72.6 miles of 230-kV double -circuit transmission line from the Elverta Substation to Tracy Substation (Segments C, D, and E)	107.8 miles right of way length 167 new structures 163 existing structures replaced 17 structures abandoned 28 miles of new access roads 581 acres short-term disturbed 66 acres long-term disturbed
Alternative 1: Reconductoring O'Banion Substation to Tracy Substation Reconductor 99.2 miles of 230-kV double-circuit transmission line from the O'Banion Substation to Tracy Substation (Segments A, B, C, D, and E)	99.2 miles right of way length 199 existing structures replaced 85 acres short-term disturbed 0 acres long-term disturbed
Alternative 2: New Transmission O'Banion Substation to Elverta Substation and Realignments Construct 26.6 miles of new 230-kV double-circuit transmission line from O'Banion Substation to Elverta Substation (Segments A_1 and B) Realign 230-kV double-circuit transmission line (Construct transmission line around the Pleasant Grove Cemetery, construct 5 miles of Segment G; abandon 3.6 miles of Segments F and H)	35.2 miles right of way length 167 new structures 17 structures abandoned 28 miles of new access roads 515 acres short-term disturbed 66 acres long-term disturbed
Alternative 3: New Transmission Elk Grove Substation to Tracy Substation Construct 46.2 miles of new 230-kV double-circuit transmission line from Elk Grove Substation to Tracy Substation (Segment E_1)	46.2 miles right of way length 225 new structures 47 miles new access roads 855 acres short-term disturbed 108 acres long-term disturbed
No Action Operation and maintenance unchanged. Western would not build additional transmission lines or substations (existing Segments A, B, C, D, and E)	0 miles right of way length 0 new structures 0 structures abandoned 0 miles of new access roads 0 acres short-term disturbed 0 acres long-term disturbed

Source: Original 09-10-02

ES.7 IMPACTS

The Proposed Action would consist of 31.6 miles of new construction (including realignments) on new and existing ROWs (Segments A_1, B, and G) and 72.6 miles of reconductoring on existing ROWs (Segments C, D, and E). The Proposed Action would require 3.6 miles of existing line that would be abandoned in place (Segments F and H). A total of 330 new structures would be required, while 17 existing structures would be abandoned in place. A total of 28 miles of new access roads would be required. Approximately 49 pulling sites would be needed along the length of the transmission line, temporarily impacting 19.6 acres. In total, the Proposed Action would temporarily disturb 581 acres and impact 66 acres long term.

Construction of the Proposed Action would involve 330 new structures, the greatest number when compared with 199 for Alternative 1, 167 for Alternative 2, and 225 for Alternative 3. The Proposed Action has fewer miles of new construction on new ROW (31.6 miles) than does Alternative 3 (46.2 miles), the same as Alternative 2, and more than Alternative 1. The Proposed Action would disturb 66 acres long term, the same as Alternative 2, and fewer than Alternative 3 (108 acres). Alternative 1, a proposal to reconductor the transmission line from O'Banion Substation to Tracy Substation, would not impact any additional acreage. Table ES-2 provides a summary comparison of these disturbances.

SNR developed and uses environmental protection measures (EPMs) to reduce environmental consequences associated with construction activities. For the Proposed Action and action alternatives the environmental impacts are similar. Generally, new construction would result in more impacts than reconductoring because of the requirement for new structures and access roads. The Proposed Action affects more overall miles than the other action alternatives; however, only a portion is new construction. Alternative 3, which is all new construction, may have a greater potential for impacts.

Air quality is the only resource area that may have a significant impact for the action alternatives. However, more detailed air quality analysis would be necessary once a project is selected to move forward. Significant impacts would be mitigated to less than significant. The No Action Alternative appears to have the fewest day-to-day impacts for the operation and maintenance of the existing transmission line; however, it does not meet the need for power system security and reliability. A comparison of the impacts associated with each alternative is presented in Table ES-3.

ES.8 CUMULATIVE IMPACTS

Cumulative impacts result from the incremental effect of the action, decision, or project when added to other past, present, and reasonably foreseeable future actions. Requirements for addressing cumulative impacts are to gather and analyze enough data to make a reasoned decision concerning these impacts. Western examined actions that have environmental impacts on the same resources affected by this proposal and similar projects. Western also reviewed other proposed projects including major linear projects that would potentially create impacts on the same resources. For past actions, Western included existing transmission lines in the study area. Impacts from these past projects were considered for each resource area.

ES.8.1 Reasonably Foreseeable Projects

A list of reasonably foreseeable projects is presented in Table ES-4. The proposed projects include power generation that would require construction of new transmission lines and interconnection to the Sacramento area power grid.

ES.8.2 Cumulative Effects

Cumulative effects for environmental justice (EJ), floodplains, geology, soils, health and safety, land use, noise, and wetlands are expected to be negligible. A description of cumulative effects is provided below for air quality, biological resources, cultural resources, electric and magnetic fields, paleontological resources, socioeconomics, visual resources, and water resources.

ES.8.2.1 Air Quality

Within the Sacramento area, particulate emissions,VOCs, and NO_x from construction activities, rice field and agricultural burning, industrial operations (aggregate mining), and vehicle equipment may all impact air quality. Constructing new transmission lines or reconductoring existing lines add to these emissions, but only for the short term. Western would use EPMs to reduce particulate emissions, VOCs, and NO_x. Therefore, cumulative impacts of the Proposed Action and alternatives, coupled with other area projects, would be considered unavoidable short-term impacts. Long-term operation under the Proposed Action or any alternative, along with other transmission projects in the general area, would not generate significant amounts of air pollution emissions.

Table ES-4. Projected Projects with Related Transmission Lines

Project	Proponent	County	Size (MW)	Interconnect	In Service Date	Comments or Date Approved
East Altamont Energy Center	Calpine	Alameda	1,100	Western	5/04	Online May, 2004
SMUD Cosumnes Power Plant Project Combined Cycle	SMUD	Sacramento	1,000	SMUD	10/04	Online October, 2004

Source: Original and California Energy Commission (CEC) web site http://www.energy.ca.gov/sitingcases/current.html August 2002
MW: megawatt
SMUD: Sacramento Municipal Utility District

ES.8.2.2 Biological Resources

For the short term, the Proposed Action, Alternative 2, and Alternative 3 would affect nonurban areas, or areas not developing rapidly, and containing sensitive biological habitat. Much of the study area remains rural, and it is expected to remain rural for the near term not affecting these habitats. Although the frequency of bird strikes with transmission lines would continue, the use of transmission line marking devices and locating new lines next to existing lines would result in lower additive cumulative impacts. Cumulative impacts resulting from the Proposed Action, Alternative 2, or Alternative 3, and other area projects would be considered insignificant.

The impacts to vegetation as a result of Alternative 1, reconductoring, would be temporary, as these areas would be replanted following the completion of work. As a result, cumulative impacts to biological resources would be minimal.

ES.8.2.3 Cultural Resources

Impacts from the alternatives would be limited to incremental physical impacts to cultural resources located within the existing ROW. Most new transmission lines would be located in areas with other transmission lines where the visual effects would also be incremental. Western should be able to satisfactorily avoid or mitigate impacts on prehistoric and historic archaeological sites. The potential to avoid or mitigate impacts on traditional cultural properties is less clear, although tribal groups would be involved in assessing impacts and identifying and implementing avoidance or mitigating measures.

With adherence to the EPMs, it is likely that the Proposed Action, Alternative 2, and Alternative 3, all of which include building new transmission lines, would only add slightly to the cumulative impacts on the cultural resources of the region. Alternative 1, which only includes reconductoring, would not add to the cumulative impacts on the cultural resources of the region.

ES.8.2.4. Electric and Magnetic Fields

In discussions with planning agencies, Western determined that no new permanent, occupied buildings are planned within 100 feet of Western's ROWs. Additionally, because EMFs diminish rapidly with distance from the transmission line, and there is no planned encroachment to the ROWs, there would be minimal electric and magnetic field (EMF) cumulative impacts to human health or the environment.

ES.8.2.5 Paleontological Resources

Impacts to paleontological resources could result if fossil materials are destroyed during excavation of 10 feet deep or more. Continued development, extending farther into the Central Valley, could disturb more fossil-bearing sedimentary deposits and threaten paleontological resources. The cumulative impacts depend on the increasing disturbance or removal of fossil-bearing rocks. Proper site monitoring would minimize the potential for loss of paleontological resources during construction and cumulative impacts would be negligible.

ES.8.2.6 Socioeconomics

Under the No Action Alternative, the current strain on electric power supply and distribution would continue, which could result in power supply shortfalls and disruptions as power demand increases to support future development. These supply and distribution difficulties could decrease the efficiency of business operations in the study area and have an adverse effect on the overall economy. Other related spending in local markets would continue as beneficial economic effects.

ES.8.2.7 Visual Resources

Past, existing, and future development have and would continue to visually alter the landscape. Negative effects to the visual quality of the area from development include existing utility lines and associated cleared ROWs, commercial development, major roads, abandoned

buildings, industrial land uses, aggregate mining, and sand and gravel pits. Where the alternative would be located near one of these existing negative visual features, the impacts would result in an additive adverse effect to the existing visual impacts. However, locating the proposed transmission line next to an existing utility corridor would typically be preferable to locating the line in a previously undisturbed landscape. The additive cumulative impacts for any of the alternatives would not be significant.

ES.8.2.8 Water Resources

Growth and development in the Sacramento area would increase water demand. Construction activities projected for the Proposed Action and alternatives would cause slight increases in surface-water sediment load and water use. These effects would be transitory. Incremental increases in surface-water sediment load from maintenance would not result in significant cumulative impacts.