

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

In the Matter of the Application of The Nevada) Application 10-07-001
Hydro Company for a Certificate of Public) (Filed July 6, 2010)
Convenience and Necessity for the Talega-)
Escondido/Valley-Serrano 500 kV Interconnect.)
_____)

Direct Testimony of Ian Ramsay

on behalf of

The Nevada Hydro Company

November 30, 2010

Direct Testimony of Ian Ramsay
on behalf of The Nevada Hydro Company

- 1 Q. Please state your name, title, and business address.
- 2 A. My name is Ian Ramsay. I am a Senior Project Manager at Siemens and my business
3 address is 2888 Loker Avenue East, Suite #315, Carlsbad, CA 92010.
- 4 Q. Please describe your employment and other relevant experience.
- 5 A. I am a Senior Project Manager at Siemens for High Voltage Transmission Systems. I am
6 the appointed Siemens project manager for the TE/VS Interconnect project. I have a
7 Bachelor of Engineering Degree in Electrical and Electronic Engineering. I have been
8 involved in the engineering, design, test and project management of High Voltage
9 Transmission projects since 1990.
- 10 Q. On whose behalf are you submitting this testimony?
- 11 A. On behalf of Nevada Hydro.
- 12 Q. What is the purpose of your testimony?
- 13 A. I am providing the engineering cost estimates for the TE/VS interconnect. I am also
14 commenting upon the proposed schedule and the project components.
- 15 Q. How is your testimony organized?
- 16 A. My testimony provides a simplified overview of the project components and the
17 estimated costs for those components. Also, I have included comments as to the project
18 schedule.
- 19 Q. Are you familiar with the Proponent's Environmental Assessment, Chapter 3 (Project
20 Description) submitted by Nevada Hydro with its CPCN application?
- 21 A. Yes I am.
- 22 Q. Does it accurately reflect the scope of work for the Project? If not, why not?

1 A. The description of the project is accurate apart from in Attachment 11 of the PEA on
2 page 3 the description discusses an OHL connection from Mile Post 12.5 to the Santa
3 Rosa Substation, this project feature no longer exists.

4 The Lake Switchyard consists of 2 off 500kV 1 and ½ breaker schemes. These
5 connect the existing SCE Serrano-Valley 500kV line and the TE/VS interconnect.

6 Q. Please describe the key components of the Project.

7 A. The project is split up into a number of key components, these being:

- 8 1. Loop in of the Valley/Serrano 500kV transmission line to the Lake
9 Switchyard
- 10 2. 500kV Lake Switchyard
- 11 3. 500kV Transmission line between the Lake Switchyard and the North
12 GIL (Gas Insulated Line) Transition
- 13 4. Top of ridge GIL transmission line
- 14 5. Connection between the Top of Ridge GIL transmission line and the
15 Santa Rosa substation
- 16 6. Santa Rosa Substation
- 17 7. Santa Rosa 115kV Expansion and associated 115kV transmission line
- 18 8. 500kV Transmission line between the South GIL (Gas Insulated Line)
19 Transition and the Case Springs Substation
- 20 9. Case Springs 500kV Substation
- 21 10. Case Springs 230kV Substation
- 22 11. Southern California Edison Upgrades
- 23 12. SDG&E Upgrades

1 Q. Are you familiar with Appendix B, Section 2 (Project Plan) submitted by Nevada Hydro
2 with its CPCN application?

3 A. Yes.

4 Q. Does it accurately reflect the involvement Siemens will have in implementing the
5 Project? If not, why not?

6 A. It reflects the anticipated involvement of Siemens in the project. However under Section
7 2.4 Siemens and NHC are not yet in the planning phase of the project. Also, EPC
8 negotiations have not yet started between Nevada Hydro and Siemens. Therefore, the
9 type of project whether lump-sum, cost plus etc has not yet been agreed upon.

10 Q. Section 3 of Appendix B (Cost Estimate) submitted by Nevada Hydro with its CPCN
11 application states that Siemens will refine the cost estimate of the Project. Has this
12 occurred?

13 A. Refinement of the cost estimate is an ongoing process. This process has been going on
14 since late 2005 when Siemens first became involved in the project.

15 Q. Please describe the cost estimates for the key components of the Project.

16 A. Referring to Exhibit 1 to this testimony, I have shown the estimated costs as described
17 above in the key components. The total estimated cost of the project is \$502,494

18 T' USD. The estimated costs for each of the components are as follows (in T' USD):

19	1. Serrano – Valley loop in	\$ 9,936
20	2. Lake Switchyard	\$ 35,757
21	3. 500kV OHL Lake Switchyard – North Transition	\$ 23,381
22	4. GIL transmission line	\$ 33,261
23	5. GIL transmission line and the Santa Rosa substation	\$ 32,212

1	6.	Santa Rosa Substation	\$ 57,455
2	7.	Santa Rosa 115kV Expansion	\$ 25,739
3	8.	500kV OHL South Transition - Case Springs Substation	\$ 46,678
4	9.	Case Springs 500kV Substation	\$111,838
5	10.	Case Springs 230kV Substation	\$ 42,428
6	11.	Southern California Edison Upgrades	\$ 36,547
7	12.	SDG&E Upgrades	\$ 47,262

8 Each substation is also broken down to a more granular level for information purposes in
9 the appendix to my testimony. Siemens currently anticipates providing the following
10 components: 500kV GIS, 230kV GIS, 115kV GIL, 500kV GIL, Phase Shifting
11 transformers, step down transformers and generation step up (GSU) Transformers.

12 Q. Who prepared these cost estimates?

13 A. Budgetary cost estimates have been prepared by Siemens since we became involved with
14 the project in 2005. As the project has matured Siemens has revised the cost estimates.
15 The estimated costs stated above are based on the information Siemens has available to
16 us at the present time.

17 Q. How were they prepared?

18 A. The cost estimates are a combination of estimates from EPC and Engineering firms and
19 also Siemens internal estimates. The calculation program used is Siemens proprietary
20 information.

21 Q. Please identify any factors that may affect the cost estimates for the key components.

22 A. Due to the fact that we do not know when the project will actually begin we cannot
23 forecast USD/EURO exchange rates, internal financing costs, material and component

1 costs or labor rates. We also do not have a specific EPC contract set of terms and
2 conditions which will also affect pricing.

3 Our cost estimate does not include the following:

- 4 1. Permitting and land acquisition
- 5 2. Site preparation (Lake, Santa Rosa and Case Springs substations)
- 6 3. GIL Tunnels
- 7 4. Access roads

8 Q. Are you familiar with Appendix F (Proposed Schedule for Construction) submitted by
9 Nevada Hydro with its CPCN application?

10 A. Yes.

11 Q. Does it accurately describe the significant milestones and their durations for the Project?
12 If not, why not?

13 A. The estimated project schedule provided by Siemens is a two year schedule. It will be
14 possible to construct the project in two years depending on the timely completion of the
15 GIL tunnels. After the GIL tunnels have been completed Siemens requires a period of 4
16 months to install the GIL system. Testing can only take place after this. Also, most
17 major equipment has lead times of 18 months after orders have been placed.

18 The scheduling of the SDG&E and SCE upgrades, especially the Etiwanda
19 Substation, will be challenging due to outage requirements. However this scheduling
20 should be possible.

21 Q. Does this conclude your testimony?

22 A. Yes it does.

Exhibit 1

TE/VS Interconnect
- Cost Estimate

Item Description	Qty	Unit	Total
1 OHL Valley/Serrano - Lee Lake	4	Miles	\$ 9,935,742
Lake Switchyard			\$ 35,756,786
10 500kV GIS Equipment	1	Set	\$ 17,852,672
11 13.8kV Switchgear	1	Set	\$ 555,688
12 Transformers	1	Set	\$ 640,958
13 AC/DC Supply	1	Set	\$ 451,517
14 Control and Protection	1	Set	\$ 1,302,694
15 Telecommunication equipment	1	Set	\$ 645,024
16 Cables	1	Set	\$ 411,525
17 Miscellaneous works	1	Set	\$ 2,286,277
18 Civil works	1	Set	\$ 11,610,430
20 OHL Lake Switchyard to GIL North Transition	9.4	Miles	\$ 23,381,285
Gas Insulated Line (GIL)			\$ 65,472,847
30 Top of Mountain 500kV GIL	1	Set	\$ 28,990,506
31 Top of mountain to Pump House GIL	1	Set	\$ 32,211,673
32 GIS Switches and GIL transmission to OHL	1	Set	\$ 3,056,372
33 AC/DC Supply	1	Set	\$ 361,794
34 Control and Protection	1	Set	\$ 129,005
35 Miscellaneous works	1	Set	\$ 723,498
36 Civil works	1	Set	\$ -
Santa Rosa Substation			\$ 57,454,621
40 500kV GIS Equipment	1	Set	\$ 19,883,247
41 13.8kV Switchgear	1	Set	\$ 477,124
42 Transformers	1	Set	\$ 10,480,898
43 AC/DC Supply	1	Set	\$ 451,517
44 Control and Protection	1	Set	\$ 159,554
45 Telecommunication equipment	1	Set	\$ 645,024
46 Cables	1	Set	\$ 177,704
47 Miscellaneous works	1	Set	\$ 1,451,702
48 Civil works	1	Set	\$ 23,727,850
115kV Expansion Project			
49 115kV GIS - 500/115kV 500MVA Transformer	1	Set	\$ 8,968,655
50 115kV OHL	1	Set	\$ 16,770,622
55 OHL GIL South Transition to Case Springs Substation	18.8	Miles	\$ 46,678,116
Case Springs Substation (500kV)			\$ 111,838,280
60 500kV GIS Equipment	1	Set	\$ 21,324,567
61 13.8kV Switchgear	1	Set	\$ 477,124
62 Transformers - 500/230KV 500MVA, Auxiliary transformers	1	Set	\$ 23,768,636
63 Transformers - Phase shifters 230kV 500MVA	1	Set	\$ 31,040,081
64 AC/DC Supply	1	Set	\$ 451,517
65 Control and Protection	1	Set	\$ 351,862
66 Telecommunication equipment	1	Set	\$ 645,024
67 Cables	1	Set	\$ 280,585

TE/VS Interconnect
- Cost Estimate

68	Miscellaneous works	1	Set	\$	2,537,735
69	Civil works	1	Set	\$	30,961,148
	Case Springs Substation (230kV)			\$	42,428,009
70	230kV GIS Equipment	1	Set	\$	21,438,484
71	13.8kV Switchgear	1	Set	\$	477,124
72	AC/DC Supply	1	Set	\$	451,517
73	Control and Protection	1	Set	\$	1,480,660
74	Telecommunication equipment	1	Set	\$	-
75	Cables	1	Set	\$	224,468
76	Miscellaneous works	1	Set	\$	295,086
77	Civil works	1	Set	\$	18,060,670
	SDG&E Upgrades			\$	47,261,909
80	Case Springs 230kV GIS Substation See items 70 through 77	1	Set	-	
81	Talega - Escondido 230kV loop in	1	Set	\$	1,690,300
82	69kV breaker replacement	1	Set	\$	2,875,000
83	230kV OPGW	1	Set	\$	1,259,700
84	Escondido sub 230kV tie	1	Set	\$	4,391,000
85	Talega sub 230kV Tie	1	Set	\$	3,785,000
86	Talega - Escondido 230kV line upgrade	51	Miles	\$	24,510,909
87	69kV Line relocation	1	Set	\$	8,750,000
	SCE Upgrades			\$	36,547,000
90	Serrano Substation upgrades	1	Set	\$	126,000
91	Valley Substation upgrades	1	Set	\$	2,948,400
92	Etiwanda Substation upgrades	1	Set	\$	30,164,000
93	Telecomms	1	Set	\$	1,714,000
94	Power System controls	1	Set	\$	94,600
95	Lake Switchyard - see items 10 through 18	1	Set	\$	-
96	Loop in of Valley - Serrano to Lake Switchyard See item 1	1	Set	\$	-
97	Corporate Real estate	1	Set	\$	500,000
98	Permitting	1	Set	\$	1,000,000
			TOTAL	\$	502,493,870

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of

**“DIRECT TESTIMONY OF IAN RAMSAY ON BEHALF OF THE NEVADA HYDRO
COMPANY”**

on all known parties to A.10-07-001 by transmitting an electronic mail message with the document attached to each person named in the official service list who provided an electronic mail address.

Executed this 30th day of November, 2010 at Washington, D.C.

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