

EXHIBIT B Budget Details

Direct Labor, Unloaded Hourly Rates

Title / Job Classification	Maximum Rate to be Billed* (\$ / Hr)	Number of Hours	PIER Cost Share	DOE Funds	Match Share	Total Cost
Professor	\$ 58.62	520.00	\$ -	\$ 28,929	\$ -	\$ 28,929
Professor	\$ 57.69	156.00	\$ -	\$ 8,550	\$ -	\$ 8,550
Director, Strategic Energy Initiatives	\$ 64.38	624.00	\$ -	\$ 40,172	\$ -	\$ 40,172
Assoc Dir. Ctr. For Energy	\$ 72.12	624.00	\$ -	\$ 45,004	\$ -	\$ 45,004
Dir.Sustainable Operations	\$ 57.92	624.00	\$ -	\$ 36,140	\$ -	\$ 36,140
GSR IV (4)	\$ 21.35	4,148.00	\$ -	\$ 85,901	\$ -	\$ 85,901
Lab.Asst. (2)	\$ 10.15	2,756.00	\$ -	\$ 27,984	\$ -	\$ 27,984
Post -doc	\$ 25.38	4,117.00	\$ -	\$ 99,808	\$ -	\$ 99,808
Mgr. Energy Services	\$ 54.25	312.00	\$ -	\$ 16,925	\$ -	\$ 16,925
Principal Electrical Engineer	\$ 54.25	385.00	\$ -	\$ 20,875	\$ -	\$ 20,875
Research Eng	\$ 46.15	2,278.00	\$ -	\$ 105,120	\$ -	\$ 105,120
Project Manager	\$ 40.38	1,924.00	\$ -	\$ 77,700	\$ -	\$ 77,700
Total Direct Labor			\$ -	\$ 593,108	\$ -	\$ 593,108

* Maximum salary rates are caps: PIER will not reimburse at a higher rate over the term of the project.

Fringe Benefits

Title / Job Classification	Maximum % Rate to be Billed*	Base (Typically Total Direct Labor)	PIER Cost Share	DOE Funds	Match Share	Total Cost
Professor	24%	\$28,929.00	\$ -	\$ 6,163	\$ -	\$ 6,163
Professor	24%	\$8,550.00	\$ -	\$ 1,917	\$ -	\$ 1,917
Director, Strategic Energy Initiatives	30%	\$40,172.00	\$ -	\$ 12,051	\$ -	\$ 12,051
Assoc Dir. Ctr. For Energy	30%	\$45,004.00	\$ -	\$ 13,500	\$ -	\$ 13,500
Dir.Sustainable Operations	30%	\$36,140.00	\$ -	\$ 10,842	\$ -	\$ 10,842
GSR IV (3)	3%	\$85,901.00	\$ -	\$ 1,500	\$ -	\$ 1,500
Lab.Asst. (2)	1%	\$27,984.00	\$ -	\$ 591	\$ -	\$ 591
Post -doc	3%	\$99,808.00	\$ -	\$ 25,115	\$ -	\$ 25,115
Mgr. Energy Services	27%	\$16,925.00	\$ -	\$ 5,079	\$ -	\$ 5,079
Principal Electrical Engineer	30%	\$20,875.00	\$ -	\$ 6,263	\$ -	\$ 6,263
Research Eng	30%	\$105,120.00	\$ -	\$ 31,536	\$ -	\$ 31,536
Project Manager	30%	\$77,700.00	\$ -	\$ 23,310	\$ -	\$ 23,310
Total Fringe Benefits			\$ -	\$ 137,867	\$ -	\$ 137,867

* Maximum fringe benefit rates are caps: PIER will not reimburse at a higher rate over the term of the project.

Travel**

Location	Purpose	Number of Trips	People per Trip	PIER Cost Share	DOE Funds	Match Share	Total Cost
SEGIS Conference	Major solar integration/forecst conf	3	1	\$ -	\$ 15,000	\$ -	\$ 15,000
Travel to Energy Commission	Management interface	3	1	\$ -	\$ 7,500	\$ -	\$ 7,500
Travel to Gridweek	Premier Smart Grid Conf, WDC	3	1	\$ -	\$ 7,500	\$ -	\$ 7,500
Travel to EPRI Smart Grid	Major collaborator/utility interface	3	1	\$ -	\$ 15,000	\$ -	\$ 15,000
Total Travel				\$ -	\$ 45,000	\$ -	\$ 45,000

* PIER Share: Travel is reimbursed at State rates. Higher travel costs can count as Match Share.

** Trips listed as "to be determined (TBD)" require advanced written approval from Commission Project Manager.

EXHIBIT B Budget Details

Equipment

Item	Quantity	Unit Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
Ceilometer (a.k.a. Sky Imager: camera) that captures a 360° hemispherical photo of the sky every 30 seconds. They are used to forecast the cloud cover of the sun.	1	\$ 41,777.00	\$ 12,000	\$ 29,777	\$ -	\$ 41,777
Total Equipment			\$ 12,000	\$ 29,777	\$ -	\$ 41,777

Materials, Supplies

Item	Quantity	Unit Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
General Related Research Supplies	1	\$ 13,000.00	\$ -	\$ 13,000	\$ -	\$ 13,000
Sensor repair and replacement	1	\$ 5,000.00	\$ -	\$ 5,000	\$ -	\$ 5,000
		\$ -	\$ -	\$ -	\$ -	\$ -
		\$ -	\$ -	\$ -	\$ -	\$ -
		\$ -	\$ -	\$ -	\$ -	\$ -
Total Materials and Supplies			\$ -	\$ 18,000	\$ -	\$ 18,000

Contractual

Subcontractor Name	Purpose	PIER Cost Share	DOE Funds	Match Share	Total Cost
EDSA	Partner responsible for task 1 and task 3, and part of task 5	\$ 270,857	\$ 454,143	\$ -	\$ 725,000
Direct Power Technologies	Partnering on all tasks and providing expertise on integration of DC power generation	\$ 20,000	\$ 55,000	\$ -	\$ 75,000
Walter Johnson-Consultant	Consulting expertise on testing distributed generation, former CALISO manager	\$ 15,000	\$ 75,000	\$ -	\$ 90,000
Joseph Sayer-Consultant	Consulting expertise on energy storage R&D, former NYSERDA manager	\$ 5,000	\$ 40,000	\$ -	\$ 45,000
Keith Davidson-Consultant	Consultant on energy and environmental technology development, president of DG solutions	\$ 5,000	\$ 40,000	\$ -	\$ 45,000
Total Contractual		\$ 315,857	\$ 664,143	\$ -	\$ 980,000

Miscellaneous

Item	Purpose	PIER Cost Share	DOE Funds	Match Share	Total Cost
NGN Comm/Computing	UCSD Cost	\$ -	\$ 2,138	\$ -	\$ 2,138
Tuition Remission	Graduate Student Researcher Support	\$ -	\$ 55,458	\$ -	\$ 55,458
Total Miscellaneous		\$ -	\$ 57,596	\$ -	\$ 57,596

Overhead

Name of Overhead	Overhead Base*	Maximum % Rate to be Billed**	Base Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
On Campus Federally Negotiated Rate	Total Direct Cost, excluding tuition remission, equipment, and subcontract costs exceeding \$25K/year	54.5%	\$ 1,040,791.00	\$ 172,143	\$ 387,088	\$ -	\$ 559,231
Total Overhead				\$ 172,143	\$ 387,088	\$ -	\$ 559,231

* Base: Define cost categories used to charge Overhead rate, e.g., Total Labor, Total Direct Cost, Materials, Subcontracts, etc.

** Maximum Indirect Overhead rates are caps: PIER will not reimburse at higher rates over the term of the project.

Exhibit B Budget Summary by Task

Task #	Task Name	PIER Cost Share (\$)	DOE Funds (\$)	Match Funding (\$)	Total (\$)
1.1	Attend Kick-off Meeting	\$0	\$0	\$0	\$0
1.2	Critical Project Review Meetings	\$0	\$0	\$0	\$0
1.3	Final Meeting	\$0	\$0	\$0	\$0
1.4	Monthly Progress Reports	\$0	\$0	\$0	\$0
1.5	Final Report	\$0	\$0	\$0	\$0
1.6	Identify & Obtain Matching Funds	\$0	\$0	\$0	\$0
1.7	Identify & Obtain Required Permits	\$0	\$0	\$0	\$0
2	Advanced Power Analytics for Steady State and Dynamic PV Models	\$250,250	\$348,740	\$0	\$598,990
3	Solar Forecasting Integrated with Energy Storage and PV Performance	\$163,500	\$235,926	\$0	\$399,426
4	Command, Control, & Communications for Power Flow Management	\$0	\$339,277	\$0	\$339,277
5	Field Testing and Validation of the Suite of Models	\$86,250	\$580,722	\$0	\$666,972
6	Raise Distribution and RTO/ISO's Situational Awareness of Virtual Power Plants	\$0	\$427,915	\$0	\$427,915
Total		\$500,000	\$1,932,579	\$0	\$2,432,579

**Exhibit B
PIER Cost Share by Task**

PIER Funding (\$)		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
Task 1	Project Administration Activities										
1.1	Attend Kick-off Meeting										\$0
1.2	Critical Project Review Meetings										\$0
1.3	Final Meeting										\$0
1.4	Monthly Progress Reports										\$0
1.5	Final Report										\$0
1.6	Identify & Obtain Matching Funds										\$0
1.7	Identify & Obtain Required Permits										\$0
	Administration Activities Subtotals	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Task	Project Technical Activities										
1	Advanced Power Analytics for Steady State and Dynamic PV Models						161,974		88,276		\$250,250
2	Solar Forecasting Integrated with Energy Storage and PV Performance				12,000		98,058		53,442		\$163,500
3	Command, Control, & Communications for Power Flow Management										\$0
4	Field Testing and Validatino of the Suite of Models						55,825		30,425		\$86,250
5	Raise Distribution and RTO/ISO's Situational Awareness of Virtual Power Plants and Microgrids										\$0
	Technical Activities Subtotals	\$0	\$0	\$0	\$12,000	\$0	\$315,857	\$0	\$172,143	\$0	\$500,000
		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
	DOE Funds Totals	\$0	\$0	\$0	\$12,000	\$0	\$315,857	\$0	\$172,143	\$0	\$500,000
	Percentage of the Total	0%	0%	0%	2%	0%	63%	0%	34%	0%	100%

Exhibit B Match Budget

Match Funding (\$)		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
Task 1 Project Administration Activities											
1.1	Attend Kick-off Meeting										\$0
1.2	Critical Project Review Meetings										\$0
1.3	Final Meeting										\$0
1.4	Monthly Progress Reports										\$0
1.5	Final Report										\$0
1.6	Identify & Obtain Matching Funds										\$0
1.7	Identify & Obtain Required Permits										\$0
Administration Activities Subtotals		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Task Project Technical Activities											
0	Advanced Power Analytics for Steady State and Dynamic PV Models										\$0
2	Solar Forecasting Integrated with Energy Storage and PV Performance										\$0
3	Command, Control, & Communications for Power Flow Management										\$0
4	Field Testing and Validatino of the Suite of Models										\$0
5	Raise Distribution and RTO/ISO's Situational Awareness of Virtual Power Plants and Microgrids										\$0
Technical Activities Subtotals		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
Match Funds Totals		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Percentage of the Total		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

**Exhibit B
Category Budget**

Budget Category Item	PIER Cost Share	DOE Funds	Match Share	Total Cost (\$)
Personnel:				
Direct Labor	\$ -	\$ 593,108	\$ -	\$ 593,108
Fringe Benefits	\$ -	\$ 137,867	\$ -	\$ 137,867
Total Personal Services	\$ -	\$ 730,975	\$ -	\$ 730,975
Operating Expenses:				
Travel	\$ -	\$ 45,000	\$ -	\$ 45,000
Equipment	\$ 12,000	\$ 29,777	\$ -	\$ 41,777
Materials / Supplies	\$ -	\$ 18,000	\$ -	\$ 18,000
Contractual	\$ 315,857	\$ 664,143	\$ -	\$ 980,000
Miscellaneous	\$ -	\$ 57,596	\$ -	\$ 57,596
Total Operating Expenses	\$ 327,857	\$ 814,516	\$ -	\$ 1,142,373
Overhead:				
Overhead	\$ 172,143	\$ 387,088	\$ -	\$ 559,231
Total Overhead	\$ 172,143	\$ 387,088	\$ -	\$ 559,231
Total	\$ 500,000	\$ 1,932,579	\$ -	\$ 2,432,579