

**Exhibit B
Category Budget**

Budget Category Item	PIER Cost Share	DOE Funds	Match Share	Total Cost (\$)
Personnel:				
Direct Labor	\$ 68,383	\$ 260,574		\$ 328,957
Fringe Benefits	\$ 23,934	\$ 91,201		\$ 115,135
Total Personal Services	\$ 92,318	\$ 351,775	\$ -	\$ 444,093
Operating Expenses:				
Travel		\$ 4,000		\$ 4,000
Equipment		\$ 19,200		\$ 19,200
Materials / Supplies		\$ 77,500		\$ 77,500
Contractual		\$ 450,000	\$ 120,000	\$ 570,000
Miscellaneous		\$ 63,183		\$ 63,183
Total Operating Expenses	\$ -	\$ 613,883	\$ 120,000	\$ 733,883
Overhead:				
Overhead	\$ 23,079	\$ 188,317	\$ 53,097	\$ 264,493
Total Overhead	\$ 23,079	\$ 188,317	\$ 53,097	\$ 264,493
Total	\$ 115,397	\$ 1,153,975	\$ 173,097	\$ 1,442,469

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
R&D Director	\$ 90.00	738	\$ -	\$ 55,350	\$ -	\$ 55,350
Senior Scientist/engineer	\$ 75.00	2,300	\$ 68,383	\$ 159,371	\$ -	\$ 227,754
Research Associate	\$ 40.00	1,146	\$ -	\$ 45,853	\$ -	\$ 45,853
Total Direct Labor			\$ 68,383	\$ 260,574	\$ -	\$ 328,957

* 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
R&D Director	40%	\$55,350.00	\$ -	\$ 19,373	\$ -	\$ 19,373
Senior Scientist/engineer	40%	\$227,754.41	\$ 23,934	\$ 55,780	\$ -	\$ 79,714
Research Associate	40%	\$45,853.00	\$ -	\$ 16,049	\$ -	\$ 16,049
Total Fringe Benefits			\$ 23,934	\$ 91,201	\$ -	\$ 115,135

* 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
Washington, DC	Meetings with ARPA-E PM	4	1	\$ -	\$ 4,000	\$ -	\$ -
Total Travel				\$ -	\$ 4,000	\$ -	\$ -

* 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.

Equipment

Item	Quantity	Unit Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
Use of CNT furnace		\$ 19,200.00	\$ -	\$ 19,200	\$ -	\$ 19,200
Total Equipment			\$ -	\$ 19,200	\$ -	\$ 19,200

Materials, Supplies

Item	Quantity	Unit Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
wafers	500	\$ 10.00	\$ -	\$ 5,000	\$ -	\$ 5,000
catalyst run	18	\$ 700.00	\$ -	\$ 12,600	\$ -	\$ 12,600
fixture machining	1	\$ 7,100.00	\$ -	\$ 7,100	\$ -	\$ 7,100
chemicals	1	\$ 40,800.00	\$ -	\$ 40,800	\$ -	\$ 40,800
other supplies	1	\$ 12,000.00	\$ -	\$ 12,000	\$ -	\$ 12,000
Total Materials and Supplies			\$ -	\$ 77,500	\$ -	\$ 77,500

Contractual

Subcontractor Name	Purpose	PIER Cost Share	DOE Funds	Match Share	Total Cost
UC Berkeley	co-operative development	\$ -	\$ 150,000	\$ 45,000	\$ 195,000
Lawrence Livermore National Laboratory	co-operative development	\$ -	\$ 300,000	\$ 75,000	\$ 375,000
Total Contractual		\$ -	\$ 450,000	\$ 120,000	\$ 570,000

Exhibit B Budget Details

Miscellaneous					
Item	Purpose	PIER Cost Share	DOE Funds	Match Share	Total Cost
IP protection fees		\$ -	\$ 15,000	\$ -	\$ 15,000
contract administration fees		\$ -	\$ 48,183	\$ -	\$ 48,183
Total Miscellaneous		\$ -	\$ 63,183	\$ -	\$ 63,183

Overhead							
Name of Overhead	Overhead Base*	Maximum % Rate to be Billed**	Base Cost	PIER Cost Share	DOE Funds	Match Share	Total Cost
G&A	Direct Cost less partner matching	30%	\$ 1,057,975.00	\$ 23,079	\$ 188,317	\$ 53,097	\$ 264,494
Total Overhead				\$ 23,079	\$ 188,317	\$ 53,097	\$ 264,494

* 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.

48192
35697.77778

Exhibit B Budget Summary by Task

Task #	Task Name	PIER Cost Share (\$)	DOE Funds (\$)	Match Funding (\$)	Total (\$)
1.1	Attend Kick-off Meeting	\$0	\$506	\$0	\$506
1.2	Critical Project Review Meetings	\$0	\$9,050	\$0	\$9,050
1.3	Final Meeting	\$0	\$506	\$0	\$506
1.4	Quarterly Progress Reports	\$0	\$24,300	\$0	\$24,300
1.5	Final Report	\$0	\$253	\$0	\$253
1.6	Identify and Obtain Matching Funds	\$0	\$253	\$0	\$253
1.7	Identify and Obtain Required Permits	\$0	\$0	\$0	\$0
1.8	DOE Contract Management	\$0	\$56,045	\$4,184	\$60,229
2.1	Membrane Fabrication	\$0	\$319,096	\$14,682	\$333,778
2.2	Membrane Functionalization	\$0	\$133,766	\$6,155	\$139,921
2.3	Test Membrane Characteristics	\$115,397	\$610,200	\$148,076	\$873,673
	Total	\$115,397	\$1,153,975	\$173,097	\$1,442,469

**Exhibit B
DOE FUNDING BY TASK**

DOE 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	\$ 300	\$ 105							\$ 101	\$506
1.2	Critical Project Review Meetings	\$ 2,400	\$ 840	\$ 4,000						\$ 1,810	\$9,050
1.3	Final Meeting	\$ 300	\$ 105							\$ 101	\$506
1.4	Quarterly Progress Reports	\$ 14,400	\$ 5,040							\$ 4,860	\$24,300
1.5	Final Report	\$ 150	\$ 53							\$ 51	\$253
1.6	Identify and Obtain Matching Funds	\$ 150	\$ 53							\$ 51	\$253
1.7	Identify and Obtain Required Permits									\$ -	\$0
1.8	DOE Contract Management							\$ 48,183		\$ 7,862	\$56,045
	Administration Activities Subtotals	\$17,700	\$6,195	\$4,000	\$0	\$0	\$0	\$48,183	\$0	\$14,836	\$90,914
Task	Project Technical Activities										
2.0	CNT Membrane Development	\$242,874	\$85,006	\$0	\$19,200	\$77,500	\$450,000	\$15,000	\$0	\$173,481	\$1,063,061
2.1	Membrane Fabrication	\$ 157,646	\$ 55,176		\$ 19,200	\$ 27,500		\$ 7,500		\$ 52,074	\$319,096
2.2	Membrane Functionalization	\$ 58,842	\$ 20,595			\$ 25,000		\$ 7,500		\$ 21,829	\$133,766
2.3	Test Membrane Characteristics	\$ 26,386	\$ 9,235			\$ 25,000	\$ 450,000			\$ 99,579	\$610,200
	Technical Activities Subtotals	\$242,874	\$85,006	\$0	\$19,200	\$77,500	\$450,000	\$15,000	\$0	\$173,481	\$1,063,061
		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
	DOE Funds Totals	\$260,574	\$91,201	\$4,000	\$19,200	\$77,500	\$450,000	\$63,183	\$0	\$188,317	\$1,153,975
	Percentage of the Total	23%	8%	0%	2%	7%	39%	5%	0%	16%	100%

**Page 7 of 7
Match Funding by Task**

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	Quarterly Progress Reports										\$0
1.5	Final Report										\$0
1.6	Identify and Obtain Matching Funds										\$0
1.7	Identify and Obtain Required Permits										\$0
1.8	DOE Contract Management									\$ 4,184	\$4,184
	Administration Activities Subtotals	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,184	\$4,184
Task Project Technical Activities											
2.0	CNT Membrane Development	\$0	\$0	\$0	\$0	\$0	\$120,000	\$0	\$0	\$48,913	\$168,913
2.1	Membrane Fabrication									\$ 14,682	\$14,682
2.2	Membrane Functionalization									\$ 6,155	\$6,155
2.3	Test Membrane Characteristics						\$ 120,000			\$ 28,076	\$148,076
	Technical Activities Subtotals	\$0	\$0	\$0	\$0	\$0	\$120,000	\$0	\$0	\$48,913	\$168,913
		Direct Labor	Fringe Benefits	Travel	Equipment	Materials	Contractual	Misc	Indirect Overhead	G&A	Total
Match Funds Totals		\$0	\$0	\$0	\$0	\$0	\$120,000	\$0	\$0	\$53,097	\$173,097
Percentage of the Total		0%	0%	0%	0%	0%	69%	0%	0%	31%	100%