



Florida Atlantic Research and Development Authority

3600 FAU Boulevard, Suite 200, Boca Raton, FL 33431

April 1, 2015 at 8 AM

### AGENDA

- I. Call to order – Chairman Rosetto
- II. Roll call – Mr. Duffell
- III. Additions, deletions, substitutions to the agenda
- IV. Swearing-in of new Member Dr. Flynn – Chairman Rosetto
- V. Review of the minutes of the February 11<sup>th</sup>, 2015 meeting – Chairman Rosetto
- VI. Chairman's report
- VII. Treasurer's report
- VIII. General Counsel's report – Mr. Perera
- IX. President's report – Mr. Duffell
- X. Old business
- XI. New business
  - i. Review of Dioxide Materials White Paper
  - ii. Review of Sponsorship Agreement with Comcast
  - iii. Review of Florida Chamber initiative to market Florida
- XII. Adjourn

*Members of the public wishing to comment on issues before the Authority may fill in a Comment Card and must submit it to the Chairman before the item is taken up by the Authority. Each member of the public may speak for 3 minutes on his/her stated agenda item.*

Upcoming meeting dates:

June 10, 2015

August 12, 2015



**FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY**

**PUBLIC COMMENT REQUEST CARD**

Name	Email	Agenda Item #	Summary of Comment

Speaker must wait until the Chairman calls upon him/her to make his/her comment. Time is limited to 3 minutes, subject to modification by the Board, in order that the meeting run efficiently.



RESEARCH PARK  
AT FLORIDA ATLANTIC  
UNIVERSITY®

**FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY**

Meeting Minutes  
Meeting held at Sandow  
3651 FAU Blvd.  
Suite 200  
Boca Raton, FL 33431  
February 11, 2015 at 8 AM

Members present

Bruce Rosetto	Chair
Bob Parks	Vice Chair
Michael Daszkal	Treasurer
Roxanna Trinko	Member
Bob Swindell	Member (arrived at 8.08 am)

Members absent

Daniel Flynn	Member
Lonnie Maier	Member

Staff present: Andrew Duffell, President & CEO  
Freddy Perera, General Counsel  
Christine Burres, Director of Operations  
Jonathan Grabis, Program Manager

Others present: Kellie Boyle, *CBRE*; Kathy Koch, *Ambit Advertising and Public Relations*; Greg Martin, *Avison Young*; Keith O'Donnell, *Avison Young*; Adam Hasner, *People's Trust Insurance*; Carl English, *Boca Medical Supply*; Elaine English, *Boca Medical Supply*, Robert Weinroth, *Councilman – Boca Raton*

Call to Order

Meeting called to order by Chairman Rosetto at 8.03 AM.

Roll Call

President Duffell performed roll call, Members Lonnie Maier and Daniel Flynn absent. Mr. Duffell informed the Chairman that a quorum was present.

Additions, deletions, substitutions to the agenda

Item XIII was re-ordered to item III and item V was moved to item IV.

**The motion to reorder the agenda was made by Treasurer Daszkal and seconded by Dr. Parks. The motion passed 5-0, with 2 members absent.**

New Business

Review of Non-Disturbance, Recognition, and Direct Leasing Agreement for People's Trust Mortgage Refinancing

The request is for FARDA to execute a Non-disturbance, Recognition, and Direct Leasing Agreement ("Non-Disturbance Agreement") in connection with Deerfield Trust's application for a loan from Sun Trust. The Non-Disturbance Agreement has been reviewed and approved by the Deerfield Beach City Commission. Vice President of Peoples' Trust Insurance, Mr. Adam Hasner, thanked the Authority for its oversight on the issue and issued an invitation to host a future Authority meeting at People's Trust facility.

**A motion to approve Resolution 15-1 of the Florida Atlantic Research and Development Authority approving execution and issuance of Estoppel Certificate and Non-Disturbance, Recognition, and Direct Leasing Agreement for Suntrust Refinancing; and providing for an effective date was made by Ms. Trinka and seconded by Dr. Parks. The motion passed 5-0, with two members absent.**

Review of Agreement with Cyber Security, LLC

Acting upon the Authority's approval from the December meeting, FARDA has purchased the necessary equipment for the Cyber Security, LLC partnership and drafted an agreement to define the relationship. President of Cyber Security, LLC, Mr. Jake Ades, is currently reviewing the document but no issues are expected. This investment and relationship represents the first use of the Research Park Catalyst Fund. The Research Park expects Cyber Security, LLC to be able to scale quickly and gather enough data to obtain federal funding for future activities and collaborations with FAU and others.

**A motion to approve Resolution 15-2 of the Florida Atlantic Research and Development Authority approving the agreement with Cyber Security, LLC; and providing for an effective date was made by Dr. Parks and seconded by Mr. Swindell. The motion passed 5-0, with two members absent.**

Review of White Paper by Green Lumens

Boca Raton based Green Lumens, a manufacturer and retrofitter of LED lighting systems, is looking to sublease the space within the Research Park formerly occupied by Unified Physicians Healthcare. The company has already generated excitement within FAU's College of Engineering and the TRAC committee has recommended approval.

**A motion to approve Resolution 15-3 of the Florida Atlantic Research and Development Authority approving Green Lumens as a Tenant in the Research Park at Boca Raton; and providing for an effective date was made by Treasurer Daszkal and seconded by Ms. Trinka. The motion passed 5-0, with two members absent.**

Review of White Paper by Boca Medical Supply

Boca Medical Supply, a provider of medical supplies and equipment, is looking to become a tenant in the Research Park at Boca Raton. The company has already proposed collaboration with FAU's College of Medicine and College of Nursing and the TRAC committee has recommended approval.

**A motion to approve Resolution 15-4 of the Florida Atlantic Research and Development Authority approving Boca Medical Supply as a Tenant in the Research Park at Boca Raton and providing for an effective date was made by Dr. Parks and seconded by Treasurer Daszkal. The motion passed 5-0, with two members absent.**

Amendment to Policy 14-1 Sign Specification Policy

The sign policy enacted with Resolution 14-1 is to be amended with Resolution 15-5 of the Florida Atlantic Research and Development Authority. This amendment will mandate that all future monument signs erected within the Research Park contain the full logo of the Research Park at Florida Atlantic University.

**A motion to approve Resolution 15-5 of the Florida Atlantic Research and Development Authority amending Building Sign Specification Policy; and providing for an effective date was made by Treasurer Daszkal and seconded by Dr. Parks. The motion passed 5-0, with two members absent.**

Review of General Counsel Agreement

President Duffell recommended that FARDA elect to use the first of its two 1-year extensions to continue to utilize the law firm of Stearns Weaver and keep Freddy Perera as FARDA's general counsel.

**A motion to approve Resolution 15-6 of the Florida Atlantic Research and Development Authority Approving a One Year Extension of the Agreement with Stearns Weaver for Legal Services, Authorizing the President and CEO to Exercise the Extension Option; and providing for an effective date was made by Mr. Swindell and seconded by Ms. Trinka. The motion passed 5-0, with two members absent.**

Review of 2014 Member Attendance

President Duffell announced the attendance record for all Authority members from 2014. Out of 4 Authority meetings, Chair Bruce Rosetto attended 4, Vice-Chair Dr. Bob Parks attended 3, Treasurer Michael Daszkal attended 4, Member Roxanna Trinka attended 2, Member Bob Swindell attended 4, and Member Lonnie Maier attended 3.

### Election of 2015 Officers

It was proposed that all officers retain their positions for 2015 from 2014, Mr. Bruce Rosetto to stay on as Chair, Dr. Bob Parks to stay on as Vice-Chair, and Mr. Michael Daszkal to remain Treasurer.

**The motion to nominate the slate of officers was made by Mr. Swindell and seconded by Ms. Trinka. The motion passed 5-0, with two members absent.**

### Approval of the minutes

Chairman Rosetto asked if the Members had the opportunity to review the minutes from the December meeting. There being no additions or changes to the minutes, he asked for a motion to approve the minutes as presented.

**A motion to approve the minutes of the December 10, 2014 meeting was made by Mr. Swindell, and seconded by Treasurer Daszkal. The motion passed 5-0, with two members absent.**

### Chairman's Report

Chairman Rosetto began by thanking Sandow for use of its space for the Authority meeting. Chair Rosetto spoke about the recent appointment of Dr. Daniel Flynn to the Authority, indicating that Dr. Flynn's experience should make him a valuable addition to the Authority. Chair Rosetto informed the members that Treasurer Michael Daszkal has applied to be reappointed to another term on the Authority by the Board of Palm Beach County. Chair Rosetto also informed the Authority that Ms. Lonnie Maier will be considered for an additional term to the Authority by the Board of Broward County. Chair Rosetto informed the Authority that the Research Park has been attracting a great deal of interest from local political figures. State of Florida Representative Bill Hager visited the Research Park and was very impressed with its mission and success. U.S. Representative Ted Deutch has also reached out and will be visiting the Research Park in the coming week.

Chair Rosetto invited President Duffell to explain the new focus on expanding FARDA's relationship with additional institutions of higher education. President Duffell informed the Authority that this increased scope is statutorily valid and keeps the Authority from being limited to Florida Atlantic University (FAU). Currently, the Research Park is exploring possible ways to facilitate and participate in Lynn University's business plan competition. President Duffell is also currently meeting with representatives from Broward College and Nova University. Successful introductions between Nova Southeastern University and MobileHelp and Modernizing Medicine have already been made.

Chair Rosetto invited Mr. Keith O'Donnell from Avison Young to speak briefly about ongoing opportunities for the Deerfield location. Mr. O'Donnell spoke about several initiatives aimed at capturing the auto industry market, with the possibility of issuing an RFP for the auto sector. With roughly 4 acres to develop and several key auto industry

firms in the region, this represents a good possible fit for development of the Deerfield location.

#### Treasurer's Report

Treasurer Daszkal noted that FARDA's cash position was stronger than expected with roughly \$85K, up from \$55K in December. FARDA is currently on budget and the balance sheet is strong.

**A motion to approve the Treasurer's report was made by Ms. Trinko, and seconded by Mr. Swindell. The motion passed 5-0, with two members absent.**

#### President's Report:

President Duffell informed the Authority that FARDA's strategic document has been fully revised and updated. The document should be reviewed by each Authority member for full review and approval at the next meeting.

Ongoing efforts to secure outside support, sponsorship, and funding for the Research Park are progressing. Comcast is exploring the possibility of working with the Research Park and providing free internet access to the Technology Business Incubator offices. President Duffell is also exploring a way to obtain sponsorship funding from Bank of America. The Research Park is close to securing additional entitlements from the City of Boca Raton to increase capacity in the Boca Raton Research Park campus.

Talks about purchasing the ARC building in a joint deal with Aerospace Technologies Group (ATG) have ceased and the ARC building has been taken off of the market. The current owners have decided to re-open the facility as a program for adults with disabilities.

Tech Runway is now under the leadership and supervision of Dr. Daniel Flynn and Dr. Flynn has indicated that he will reorient Tech Runway's mission towards students. Scott Adams, co-founder of MobileHelp, will be looking to move his new company from the facilities at Tech Runway into the Research Park.

The TBI is nearing 100% capacity and the quality of companies continues to improve. FARDA will also be celebrating its 30<sup>th</sup> Anniversary this year and the Research Park is exploring options to host a dinner or gala, and put together a coffee table book of its history.

President Duffell also recognized and thanked Boca Raton Councilman Robert Weinroth for his support of the Research Park's mission.

#### General Counsel's Report

Counsel Perera reported that upon re-reading of the statute for FARDA, Palm Beach County may be entitled to an additional board member. It is the General Counsel's recommendation that FARDA approach the County Commission and inform them of this new provision. The exercise of the provision is not mandatory, however, one additional

member would result in an 8 member authority which could lead to the possibility for a split vote.

Counsel Perera conducted the annual Sunshine Law, public records, and ethics training.

Old business

No old business outstanding.

Chairman Rosetto asked the members if there was any additional new business and there being none, called for a motion to adjourn.

**Motion to adjourn made by Mr. Swindell at 9.41 am, and seconded by Ms. Trinko. The motion passed 5-0, with two members absent.**



3:25 PM  
03/23/15  
Accrual Basis

**FARDA**  
**Balance Sheet**  
As of February 28, 2015

	Feb 28, 15	Feb 28, 14
<b>ASSETS</b>		
<b>Current Assets</b>		
Checking/Savings		
BankUnited - GAP Fund	46,336.22	50,261.79
BankUnited - Money Market	28,610.40	91,269.77
BankUnited - Operating	189,669.63	255,169.85
State Investment Account	0.00	1,178.73
<b>Total Checking/Savings</b>	<b>264,616.25</b>	<b>397,880.14</b>
Accounts Receivable		
Accounts Receivable	16,273.67	44,433.40
<b>Total Accounts Receivable</b>	<b>16,273.67</b>	<b>44,433.40</b>
<b>Other Current Assets</b>		
<b>Current Assets</b>		
Contr of Lease Rental - CP		
Boca Raton RP	108,849.00	108,849.00
Deerfield Beach RP	16,072.00	16,072.00
<b>Total Contr of Lease Rental - CP</b>	<b>124,921.00</b>	<b>124,921.00</b>
<b>Total Current Assets</b>	<b>124,921.00</b>	<b>124,921.00</b>
Prepaid Expenses		
Prepaid Insurance	798.50	707.04
Prepaid Misc	62.50	890.66
<b>Total Prepaid Expenses</b>	<b>861.00</b>	<b>1,597.70</b>
<b>Total Other Current Assets</b>	<b>125,782.00</b>	<b>126,518.70</b>
<b>Total Current Assets</b>	<b>406,671.92</b>	<b>568,832.24</b>
<b>Fixed Assets</b>		
Deferred Lease Costs		
Accumulated Amortization	(3,840.91)	(3,499.23)
Deferred Lease Costs - Other	30,155.75	30,155.75
<b>Total Deferred Lease Costs</b>	<b>26,314.84</b>	<b>26,656.52</b>
Property & Equipment		
Accumulated Depreciation	(54,447.23)	(35,919.42)
Computers & Office Equipment	21,001.71	21,001.71
Leasehold Improvements	79,384.90	69,096.89
Park Signs	17,172.51	17,172.51
<b>Total Property &amp; Equipment</b>	<b>63,111.89</b>	<b>71,351.69</b>
<b>Total Fixed Assets</b>	<b>89,426.73</b>	<b>98,008.21</b>
<b>Other Assets</b>		
Contribution of Lease Rental		
Boca Raton Research Park	7,619,409.00	7,619,409.00
Deerfield Beach Research Park	1,398,288.00	1,398,288.00
<b>Total Contribution of Lease Rental</b>	<b>9,017,697.00</b>	<b>9,017,697.00</b>
<b>Total Other Assets</b>	<b>9,017,697.00</b>	<b>9,017,697.00</b>
<b>TOTAL ASSETS</b>	<b>9,513,795.65</b>	<b>9,684,537.45</b>
<b>LIABILITIES &amp; EQUITY</b>		
<b>Liabilities</b>		
<b>Current Liabilities</b>		
Accounts Payable		
Accounts Payable	10,206.72	22,272.72
<b>Total Accounts Payable</b>	<b>10,206.72</b>	<b>22,272.72</b>
<b>Other Current Liabilities</b>		
Compensated Absence Liability	955.68	7,078.19

3:25 PM  
03/23/15  
Accrual Basis

**FARDA**  
**Balance Sheet**  
As of February 28, 2015

	Feb 28, 15	Feb 28, 14
<b>Def Cont of Lease Rental - CP</b>		
Boca Raton Res Park	108,849.00	108,849.00
Drfd Bch Research Park	16,072.00	16,072.00
<b>Total Def Cont of Lease Rental - CP</b>	124,921.00	124,921.00
<b>Deferred Revenue</b>	1,250.00	0.00
<b>Health Savings</b>		
Flexible Spending	(885.78)	(624.94)
Unreimb Medical	(601.38)	921.59
<b>Total Health Savings</b>	(1,487.16)	296.65
<b>Rent Collected in Advance</b>	211,523.56	217,551.87
<b>Sales Tax Payable</b>	946.58	1,414.50
<b>Total Other Current Liabilities</b>	338,109.66	351,262.21
<b>Total Current Liabilities</b>	348,316.38	373,534.93
<b>Long Term Liabilities</b>		
<b>Dfrd Cont of Lease Rental</b>		
Boca Raton Research Park	7,619,409.00	7,619,409.00
Deerfield Beach Research Park	1,398,288.00	1,398,288.00
<b>Total Dfrd Cont of Lease Rental</b>	9,017,697.00	9,017,697.00
<b>Rent Deposits Payable</b>	14,456.00	23,100.00
<b>Utility Deposits Payable</b>	0.00	2,136.00
<b>Total Long Term Liabilities</b>	9,032,153.00	9,042,933.00
<b>Total Liabilities</b>	9,380,469.38	9,416,467.93
<b>Equity</b>		
<b>Funds Invested in Cap Assets</b>	106,140.00	106,140.00
<b>Retained Earnings</b>	20,517.93	186,380.07
<b>Net Income</b>	6,668.34	(24,450.55)
<b>Total Equity</b>	133,326.27	268,069.52
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b>9,513,795.65</b>	<b>9,684,537.45</b>

**FARDA**  
**Statement of Cash Flows**  
**October 2014 through February 2015**

	Oct '14 - Feb 15
<b>OPERATING ACTIVITIES</b>	
Net Income	6,668.34
Adjustments to reconcile Net Income to net cash provided by operations:	
Accounts Receivable	17,510.31
Prepaid Expenses:Prepaid Insurance	1,598.00
Accounts Payable	1,453.56
Deferred Revenue	(22,500.00)
Health Savings:Unreimb Medical	(906.15)
Payroll Liabilities	(21,530.00)
Rent Collected in Advance	124,933.26
Sales Tax Payable	27.46
Net cash provided by Operating Activities	107,254.78
<b>FINANCING ACTIVITIES</b>	
Rent Deposits Payable	(169.00)
Net cash provided by Financing Activities	(169.00)
Net cash increase for period	107,085.78
Cash at beginning of period	157,530.47
Cash at end of period	264,616.25

Florida Atlantic Research & Development Authority		February 2015 Actual	February 2014 Actual	February 2015 Budget	YTD 2015 Actual	YTD 2014 Actual	YTD 2015 Budget
<b>Land Income</b>							
Boca Land - Phase I	14,696	14,600	14,746	72,904	72,400	73,731	
Boca Land - Phase II	5,883	5,711	5,903	29,184	28,413	29,514	
Boca Land - VOC	1,086	1,086	1,104	5,430	5,384	5,520	
Deerfield Land - Phase I	4,700	4,700	4,739	23,500	23,356	23,695	
Deerfield Land - Phase II	3,320	3,320	3,347	16,600	16,496	16,735	
Deerfield Land - Phase III	4,797	4,797	4,837	23,985	23,837	24,185	
Deerfield Land - Additional Property	5,570	5,570	5,660	27,850	27,846	28,298	
BRAA Land - 1.32 acres	1,075	0	1,075	5,375	0	5,374	
BRAA Land - 1.79 acres	1,803	1,803	1,881	9,121	9,013	9,407	
<b>Total Land Income</b>	<b>42,930</b>	<b>41,587</b>	<b>43,292</b>	<b>213,949</b>	<b>206,745</b>	<b>216,458</b>	
<b>Land Expense</b>							
Attorney fees (80% annual attorney fees)	10,678	624	1,667	18,736	9,568	8,333	
<b>Total Land Expense</b>	<b>10,678</b>	<b>624</b>	<b>1,667</b>	<b>18,736</b>	<b>9,568</b>	<b>8,333</b>	
<b>Net Income - Land</b>	<b>32,252</b>	<b>40,963</b>	<b>41,625</b>	<b>195,213</b>	<b>197,177</b>	<b>208,125</b>	
<b>Incubator Income</b>							
Suite 400 - rent (internet is included in rent)	17,508	11,650	19,355	90,442	79,643	96,775	
Suite 210 - rent	13,761	16,005	0	68,805	68,541	22,934	
<b>Total Incubator Income</b>	<b>31,269</b>	<b>27,655</b>	<b>19,355</b>	<b>159,247</b>	<b>148,184</b>	<b>119,709</b>	
<b>Incubator Expense</b>							
Suite 400 - rent (paid to CBRE)	25,778	22,634	25,427	127,250	104,953	127,137	
Suite 210 - rent (paid to CBRE)	13,370	13,134	0	67,323	65,672	22,284	
FPL - Suite 400	4,041	2,245	2,325	13,204	7,074	11,625	
FPL - Suite 210	854	1,138	375	5,860	5,679	1,875	
FPL Fibernet (Internet)	1,509	1,509	1,509	7,545	6,036	7,545	
FL LambdaRail (Internet)	0	0	833	11,662	7,912	4,167	
AC Maintenance - Suite 400	0	0	155	1,065	0	775	
AC Maintenance - Suite 210	155	155	33	155	155	167	
IT Maintenance/Upgrades	0	0	700	325	0	3,500	
Facility Maintenance/Repairs	740	1,514	375	1,549	2,258	1,875	
Janitorial - Suite 400 and Suite 210	1,188	1,248	867	7,128	5,653	4,333	
Copier	0	0	65	0	0	325	
<b>Total Incubator Expense</b>	<b>47,635</b>	<b>43,577</b>	<b>32,665</b>	<b>243,066</b>	<b>205,392</b>	<b>185,608</b>	
<b>Net Income - Incubator</b>	<b>(16,366)</b>	<b>(15,922)</b>	<b>(13,310)</b>	<b>(83,819)</b>	<b>(57,208)</b>	<b>(65,899)</b>	
<b>Service Income</b>							
New World Angels	2,875	0	3,438	14,375	0	17,188	
<b>Total Service Income</b>	<b>2,875</b>	<b>0</b>	<b>3,438</b>	<b>14,375</b>	<b>0</b>	<b>17,188</b>	
<b>Service Expense</b>							
Travel reimbursement	0	0	0	0	0	0	
<b>Total Service Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Net Income - Service</b>	<b>2,875</b>	<b>0</b>	<b>3,438</b>	<b>14,375</b>	<b>0</b>	<b>17,188</b>	
<b>Marketing Income</b>							
Marketing Cost Share	1,250	1,250	1,250	6,250	7,500	6,250	
Banner Signs	0	0	1,875	26,250	0	9,375	
Podcasts	0	0	625	7,500	0	3,125	
<b>Total Marketing Income</b>	<b>1,250</b>	<b>1,250</b>	<b>3,750</b>	<b>40,000</b>	<b>7,500</b>	<b>18,750</b>	
<b>Marketing Expense</b>							
Ambit	3,596	3,000	3,333	15,708	17,099	16,667	
Banner Signs	0	0	708	7,947	0	3,542	
<b>Total Marketing Expense</b>	<b>3,596</b>	<b>3,000</b>	<b>4,042</b>	<b>23,655</b>	<b>17,099</b>	<b>20,208</b>	
<b>Net Income - Marketing</b>	<b>(2,346)</b>	<b>(1,750)</b>	<b>(292)</b>	<b>16,345</b>	<b>17,099</b>	<b>(1,458)</b>	
<b>Sponsorship Income</b>							
Sponsor Partner Program	0	0	0	0	0	2,083	
<b>Total Sponsorship Income</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,083</b>	
<b>Sponsorship Expense</b>							
Promotional items	0	0	0	0	0	208	
<b>Total Sponsorship Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>208</b>	
<b>Net Income - Sponsorship</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,875</b>	
<b>Event Income</b>							
Networking events and workshops	0	0	0	0	9,740	4,167	
<b>Total Event Income</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,740</b>	<b>4,167</b>	
<b>Event Expense</b>							
Venue and catering	0	0	0	0	0	2,083	
<b>Total Event Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,083</b>	
<b>Net Income - Event</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,083</b>	
<b>Grant Income</b>							
Nothing Confirmed	0	0	0	0	0	0	
<b>Total Grant Income</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Grant Expense</b>							
Misc. grant related expense	0	0	0	0	0	0	
<b>Total Grant Expense</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Net Income - Grant</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>Municipal Contribution Income</b>							
Palm Beach County contribution (not confirmed)	0	0	0	0	0	0	

City of Boca Raton contribution	0	0	0	0	0	0
<b>Total Municipal Contribution Income</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Municipal Contribution Expense</b>						
Misc. program related expense (10% of income)	0	0	0	0	0	0
Catalyst Fund (25K contribution from FARDA)	4,101	0	4,101	4,101	0	0
<b>Total Municipal Contribution Expense</b>	<b>4,101</b>	<b>0</b>	<b>4,101</b>	<b>4,101</b>	<b>0</b>	<b>0</b>
<b>Net Income - Tax</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Misc. Income	8,955	10	417	30,776	308	2,083
Interest	20	37	30	147	247	149
<b>Total Income</b>	<b>87,299</b>	<b>70,539</b>	<b>70,281</b>	<b>458,494</b>	<b>372,724</b>	<b>380,587</b>
<b>Total Expense</b>	<b>66,010</b>	<b>47,201</b>	<b>42,474</b>	<b>289,558</b>	<b>232,059</b>	<b>216,441</b>
<b>Total Net Income</b>	<b>21,289</b>	<b>23,338</b>	<b>27,806</b>	<b>168,936</b>	<b>140,665</b>	<b>164,146</b>
<b>Operational Expense</b>						
Employee Salary (payroll) (includes taxes)	20,026	17,960	21,399	95,157	71,653	106,996
Employee Benefits	3,365	3,369	2,764	18,894	12,322	13,820
Employee Training/Education	0	8,746	833	2,895	8,746	4,167
Employee Bonus/Incentive	0	0	1,667	0	0	8,333
Insurance (Liability, Disability)	799	953	868	3,603	3,303	4,338
Accounting	500	500	1,250	2,500	2,500	6,250
Legal	2,670	156	417	4,684	2,386	2,083
Consulting/Contract	0	0	0	0	0	0
Travel/Meetings/Seminars	1,372	144	625	7,039	6,124	3,125
Automobile Expense	550	550	542	2,200	2,750	2,708
Business Meals	0	0	167	0	0	833
Dues/Memberships	1,030	228	1,358	19,176	1,957	6,790
Publications/Subscriptions	0	0	40	0	0	202
Supplies/Equipment	251	980	292	1,433	1,475	1,458
Postage	0	46	21	148	58	104
Printing	28	151	208	28	347	1,042
Telephone (bus. line, conf calls, cell reimb.)	195	296	292	1,378	1,350	1,458
Website	0	40	100	297	337	500
Community/Sponsorship Support	0	0	1,250	0	0	0
Restricted Reserves	0	0	2,083	0	0	0
Misc. Expenses	125	35,025	29	1,383	43,960	146
Professional Fees - Planning	0	1,041	0	0	36,593	0
Contribution - EDC	0	0	0	0	0	0
Depreciation	0	0	0	0	0	0
Service Fees (payroll, bank, interest/penalties etc)	280	313	223	1,454	1,583	1,116
<b>Total Operational Expense</b>	<b>31,191</b>	<b>70,498</b>	<b>36,427</b>	<b>162,269</b>	<b>197,444</b>	<b>165,470</b>
<b>Total Expense</b>	<b>97,201</b>	<b>117,699</b>	<b>78,901</b>	<b>451,827</b>	<b>429,503</b>	<b>381,911</b>
<b>Net Income</b>	<b>(9,902)</b>	<b>(47,160)</b>	<b>(8,621)</b>	<b>6,667</b>	<b>(56,779)</b>	<b>(1,325)</b>

RESOLUTION 15-7

**RESOLUTION OF THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY APPROVING DIOXIDE MATERIALS AS A TENANT IN THE RESEARCH PARK IN BOCA RATON; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the Florida Atlantic Research and Development Authority (the “Authority”) was created by the County Commissions of Palm Beach and Broward Counties pursuant to Chapter 159, Florida Statutes; and

WHEREAS, one of the Authority’s public purpose(s) is to develop, operate and oversee research parks in affiliation with an institution of higher education, such as Florida Atlantic University (the “University”); and

WHEREAS, all prospective tenants of the Authority’s research park(s) must establish that their activities are in compliance with the Authority’s public purpose(s) as set forth by state and local law and that such activities are performed in affiliation with the University;

WHEREAS, Dioxide Materials has submitted a White Paper, attached as Exhibit “1”, representing that its activities will implement and promote the public purpose(s) of the Authority;

WHEREAS, the Technology Review, Advisory and Innovation Committee (“TRAC”) has reviewed the White Paper submitted by Dioxide Materials and has recommended the approval of Dioxide Materials as a tenant in Research Park at Boca Raton; and

WHEREAS, based on the representations made by Dioxide Materials in the White Paper, the Authority has determined the activities to be performed by Dioxide Materials will comply with the Authority’s public purpose(s) and will be done in affiliation with the University.

NOW THEREFORE BE IT RESOLVED BY THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY THAT:

1. Each and every whereas clause set forth above is a true and correct recital and representation and is incorporated herein as if set forth fully.
2. Based upon the representations made by Dioxide Materials in Exhibit 1 and subject to Dioxide Materials’ continued compliance with such representations, Dioxide Materials is hereby approved as a tenant in the Authority’s Research Park at Boca Raton for a period of five years.
3. The approval set forth herein shall expire and be of no further force and effect if Dioxide Materials has not executed and entered into a lease agreement for property in the Research Park at Boca Raton within six months from the effective date hereof.
4. This Resolution shall be effective upon its adoption.

ADOPTED THIS \_\_\_\_\_ DAY OF APRIL, 2015.

BY: \_\_\_\_\_  
BRUCE ROSETTO, CHAIR

TRAC White Paper



Dioxide Materials, Inc  
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Boca Raton Fl, 33431  
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## 1 INTRODUCTION

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Dioxide Materials is a four-year old startup company that is developing products for CO<sub>2</sub> sensing and CO<sub>2</sub> utilization. We are leaders in developing processes to convert waste CO<sub>2</sub> into useful products, allowing companies to lower their greenhouse gas emissions and allowing utilities to store renewable energy. We also have the smallest, lowest power CO<sub>2</sub> sensors on the market. We are currently receiving about \$2,000,000/yr from the federal government, and about \$300,000/yr from industrial sources. Dioxide Materials' CEO, Richard Masel is a retired professor from UIUC, one of the top 5 engineering programs in the US. Masel is listed in [highlycited.com](http://highlycited.com) as one of the most cited engineers in the world.

The move to 3998 FAU Boulevard, Suite 300 in the Research Park will allow Dioxide Materials consolidate all of our operations in one location, to expand our sales in the commercial sector.

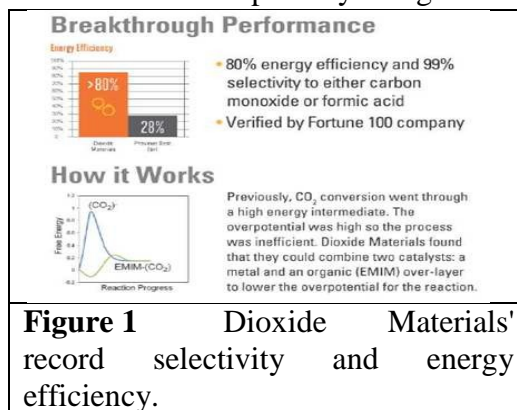
## 2 COMPANY BACKGROUND

Dioxide Materials is a four-year old startup company that is developing products for CO<sub>2</sub> sensing and CO<sub>2</sub> utilization by creating a new chemical value chain using carbon dioxide and renewable energy (instead of oil and gas) as a feedstock for the synthesis of high value chemicals and fuels.

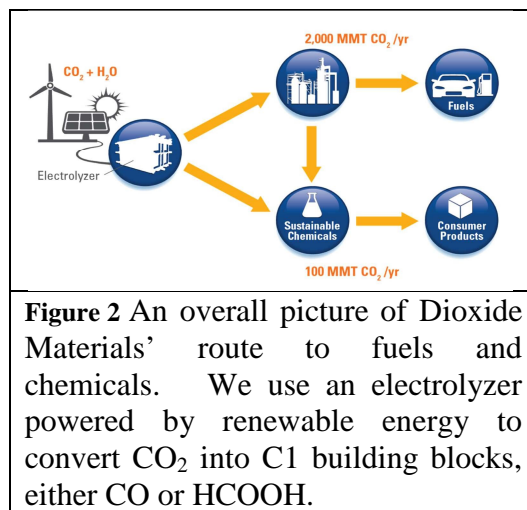
We are offering an economic solution to reduce the world's carbon footprint by using waste CO<sub>2</sub> that would otherwise be released in the air or pumped in the ground and also finding a way to get more renewable energy on to the electrical grid as a source of energy to further reduce carbon output. When there is more renewable energy than the grid needs, we are going to use that renewable energy, captured CO<sub>2</sub> and water and electrochemically convert it to high value chemicals and eventually fuels.

Effective conversion CO<sub>2</sub> to fuels and chemicals has the potential to treat hundreds of millions of tons of CO<sub>2</sub> annually, but so far, the process has never been economic. Previous researchers have found that such a process is possible but not economically viable, because the selectivity and energy efficiency of the electrochemical reduction of carbon dioxide processes were modest. Fortunately, as highlighted in Figure 1, scientists at Dioxide Materials and University of Illinois have identified a series of new catalysts, based on mixtures of imidazolium compounds and active metals that raised the selectivity of the CO<sub>2</sub> conversion to CO to over 99%, and increased the overall energy efficiency to over 80%<sup>1</sup>. The new catalysts lower the amount of electricity needed to produce a ton of product by a factor of 2-3, which makes the process economically viable. The catalyst works by creating a new electrochemical pathway for CO<sub>2</sub> conversion in which electrical energy is used to create a CO<sub>2</sub>-imidazolium complex, and then the complex reacts with protons or other species to yield a useful chemical product<sup>2</sup>.

Dioxide Materials' goal is to provide cost-effective solutions for converting waste carbon dioxide from power plants, cement plants, breweries, refineries, etc., and develop an industry whereby most waste CO<sub>2</sub> is used as a feedstock to produce gasoline, diesel fuel, jet fuel, and industrial chemicals thereby reducing the United States' dependence for imported oil, creating thousands of U.S. jobs while significantly reducing the greenhouse gas emissions that lead to global warming, Figure 2. Preliminary cost modeling indicates that the process is likely to be economic at current CO<sub>2</sub> separation costs (\$60/MT) even in the absence of carbon credits. So far, production of formaldehyde, formic acid, acrylic acid, carbon monoxide, and propylene has been demonstrated in the lab. If the U.S. production of these products all used a CO<sub>2</sub> feedstock, the process would



**Figure 1** Dioxide Materials' record selectivity and energy efficiency.



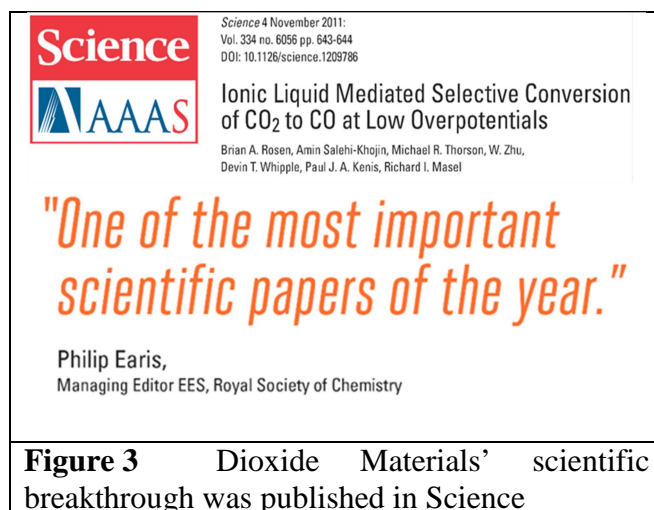
**Figure 2** An overall picture of Dioxide Materials' route to fuels and chemicals. We use an electrolyzer powered by renewable energy to convert CO<sub>2</sub> into C1 building blocks, either CO or HCOOH.

consume 100 million metric tons of CO<sub>2</sub> per year.

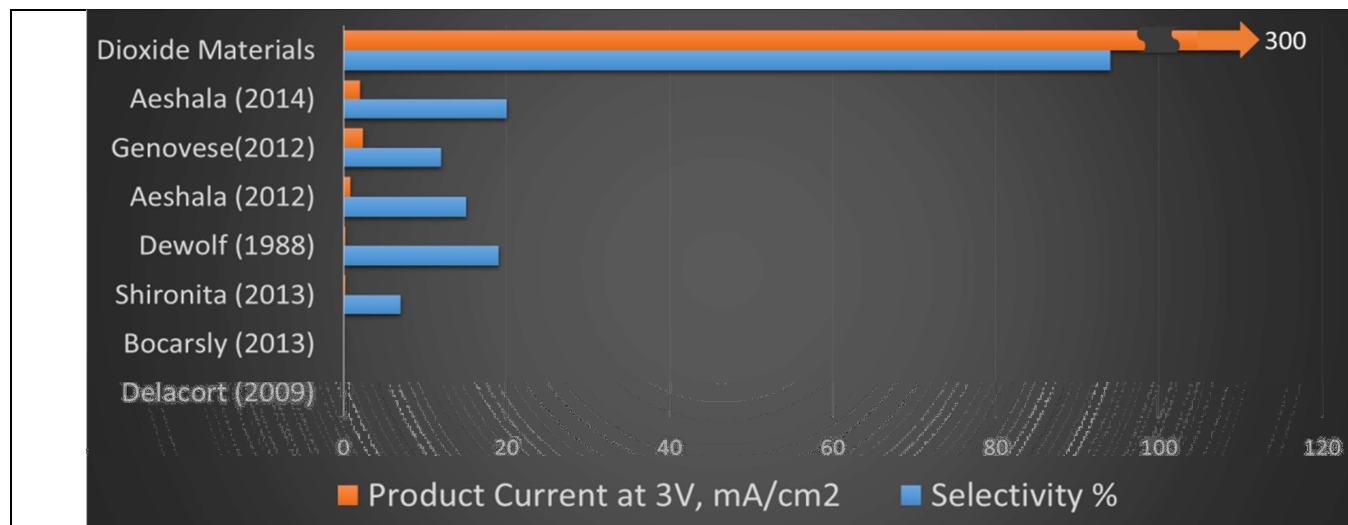
3M has already taken a license for certain applications of the technology. So far they have provided nearly \$1,400,000 to extend the efforts. The license calls for them to provide \$200,000/yr for the next two years as matching for the work, and a similar amount of minimum royalties & legal fees. The work has been funded by ARPA-E and by a Phase IIB award from the DOE. This work has allowed us to improve the technology and increase the scale. We have also developed catalysts for the direct formation of formaldehyde from our formic acid product, and acrylic acid from our CO reaction product.

## 2.1 Electrolyzer Product Description

Dioxide Materials is one of the world leaders in CO<sub>2</sub> electrolysis. We made a scientific breakthrough<sup>1</sup>: the first electrocatalyst that can activate CO<sub>2</sub> at over 80% energy efficiency and 99% selectivity. The electrochemical conversion of carbon dioxide (CO<sub>2</sub>) into useful products has been studied for years, but up until 2011, all of the existing processes suffered from the need for large overpotentials, and/or limited selectivity to desired products. In 2011, workers at Dioxide Materials and The University Of Illinois discovered<sup>1, 2</sup> that the combination of two catalysts, *i.e.*, a metal (silver) and an ionic liquid solution containing equal volumes of 1-ethyl-3-methylimidazolium tetrafluoroborate (EMIM-BF<sub>4</sub>) and water, reduced the overpotential for CO<sub>2</sub> conversion to carbon monoxide (CO) from about 1 volt to only 0.17 volts. The energy efficiency of the process was over 80%. The selectivity to carbon monoxide was over 99% for a wide range of conditions. This discovery was published in Science<sup>1</sup> and has been highlighted in over 100 news sources including Science<sup>3</sup>, Nature Climate Change<sup>4</sup>, Scientific American<sup>5</sup>, Motortrend<sup>6</sup> and Cankao Xiaoxi<sup>7</sup>. The discovery has been called “One of The Most Important Scientific Papers of the Year,”<sup>8</sup>



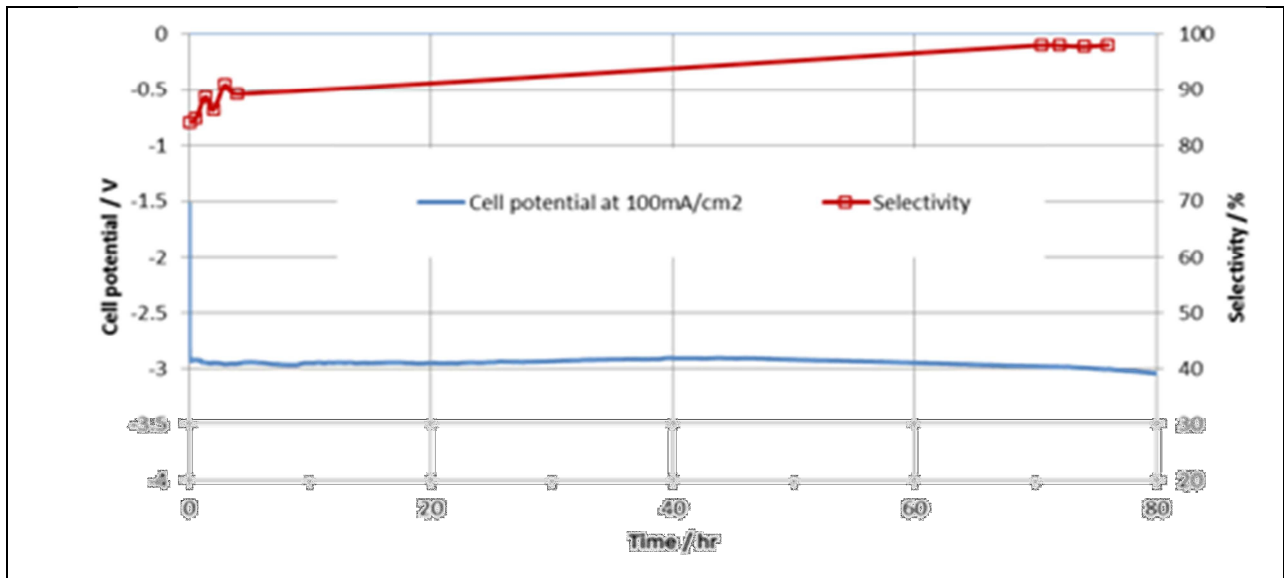
**Figure 3** Dioxide Materials’ scientific breakthrough was published in Science



**Figure 4** A comparison of Dioxide Materials' electrolyzer to others from the literature.

### 2.1.1 Current Technology Progress

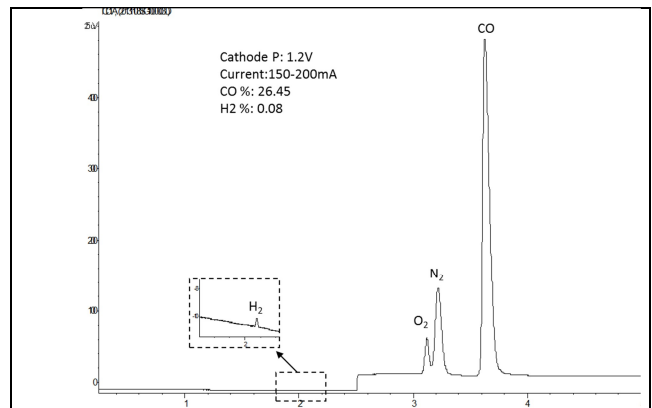
Dioxide Materials has collaborated with 3M to move the CO<sub>2</sub> electrolysis technology forward. Advances include: increasing the CO<sub>2</sub> conversion rate in the device by 300X without affecting the selectivity. Demonstrating stable performance for 100 hours; 1000 hour runs are in progress. Developing new Polymer Electrolyte Membranes (PEM) and other advances. Figure 4 compares Dioxide Materials electrolyzer results to several others from the literature. We observe much more product formation, and much higher selectivity than any of our competitors.



**Figure 5** The stability of our electrolyzer.

The results are also stable. For example, Figure 5 shows how the cell voltage varied in a run where we held the current constant and measured the voltage. Notice that the voltage does not rise as the reaction proceeds. Instead it shows stable voltage. Figure 5 also shows the selectivity of the electrolyzer i.e. the fraction of the current that goes to electrolyzing CO<sub>2</sub>. When we first start up the electrolyzer, after it is dried out, the selectivity is only 85%, but it rises after a few hours on stream. At steady state, the selectivity is over 95%.

We have also used a gas chromatograph to determine the outlet composition from the electrolyzer. Figure 6 shows a typical trace. We observe CO, air, traces of hydrogen, CO<sub>2</sub> (not shown) and nothing else.



**Figure 6** A GC trace at the output of the electrolyzer.

Current Components



**Figure 7** DM's lab-scale electrolyzer



**Figure 8** Projected Development Process

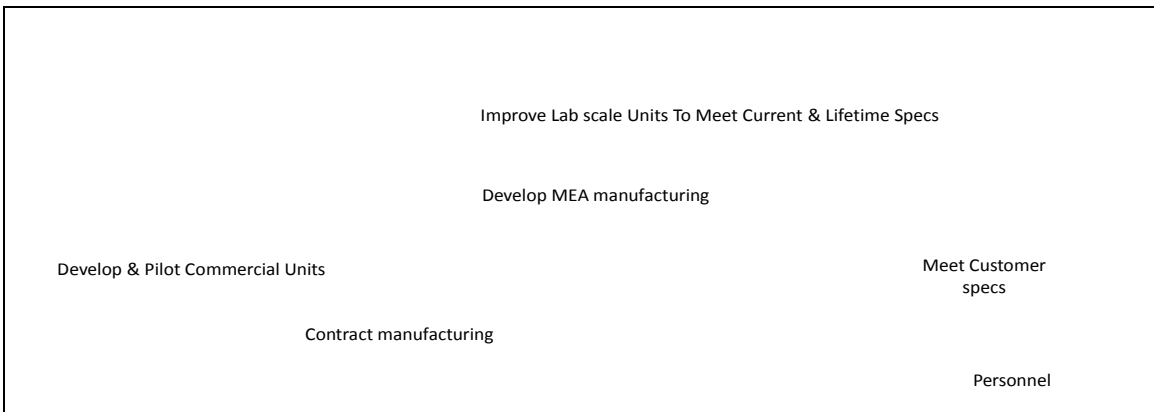
## 2.2 Technology Development Plan

Dioxide Materials and 3M are collaborating on an ARPA-E project to scale the electrolyzer part of the process toward the industrial scale. Our approach is to build self-contained electrolyzer modules. We wish to eventually produce modules that are about the size and thickness of a 55" LED television, then stack the modules together to produce an electrochemical plant. Presently, we are working with individual modules that are about the size of a cereal box as highlighted in Figure 7. We have run the module continuously in the lab for 250 hours. Longer runs are now in process.

We are on task to develop and test full-scale modules, with a 2017 goal for a commercial scale build-out by duplicating the modules into a pilot plant similar to the Bayer Chlor-Alkali Shanghai Plant illustrated in Figure 8.

An accelerating testing process is in progress and will continue through early 2016 as we work on improving lab scale units to meet current and lifetime specifications and plan for the development of pilot commercial units and MEA manufacturing as highlighted in Figure 9.

L Te



**Figure 9** DM's Long-Term Plan

## 2.3 Intellectual Property

Dioxide Materials has initiated a significant filing thrust to patent its technology and now has 9 patents pending on the technology. The first, US 8,956,990 has issued with 62 claims. A second has been allowed and should issue shortly. Several others are in various states of examination in the US, EU, Canada, Australia, China, Japan, Korea, Brazil and India.

## 2.4 The Market for CO<sub>2</sub> Electrolyzers

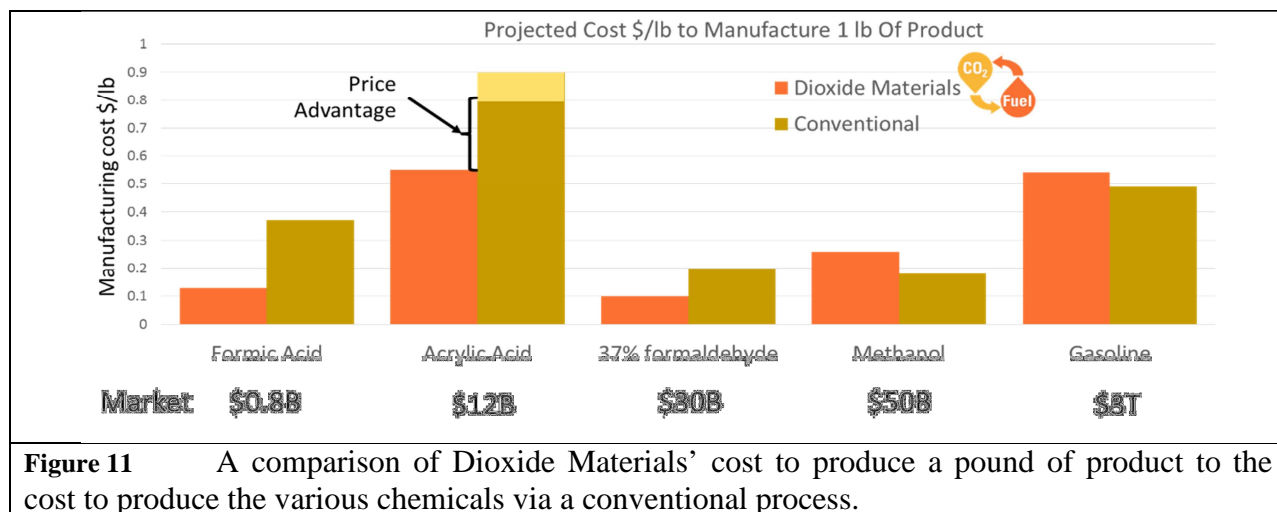
### 2.4.1 Market Description

The market opportunity for our technology is tremendous and subject to a continued high growth trend. According to Plunkett research, the worldwide chemicals industry had \$4.6 Trillion of sales in 2013. We are specifically targeting a \$15.6 Billion segment of the market that currently shows 8%/yr growth. Initially, we will target the high value chemicals market that represent low volume, high margin such as formic acid, acrylic acid, formaldehyde and methanol, followed by the fuels commodity markets for JP-8 fuel, diesel, and gasoline that represent high volume, low margin, Figure 10.

Chemicals & Fuels of Interest		
High Value Chemicals; Fuel Commodities		
• Chemicals	Global Market	High Value
-Formic Acid	\$800M	Low Volume
-Acrylic Acid	\$14B	High Margin
-Formaldehyde	\$21B	
-Methanol	\$37B	
• Fuels		Commodity
-Methanol	\$37B	High Volume
-JP-8 Jet Fuel	\$T	Low Margin
-Diesel	\$T	
-Gasoline	\$3.7T (\$5T)	

**Figure 10** High Value Chemicals and Fuel Commodities

### 2.4.2 Market Size



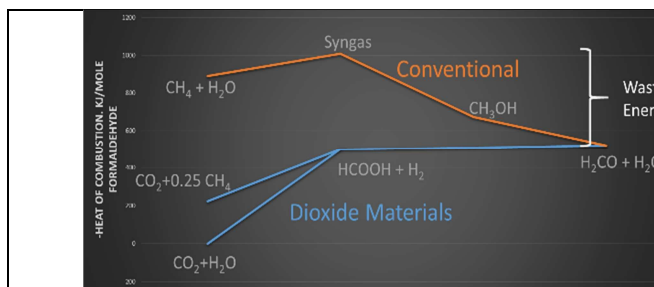
Our process is less expensive than the incumbent process for the production of formic acid, formaldehyde and acrylic acid from CO<sub>2</sub>. Figure 11 shows our best estimate of the cost to produce a number of chemicals. We cannot compete with methanol production from natural



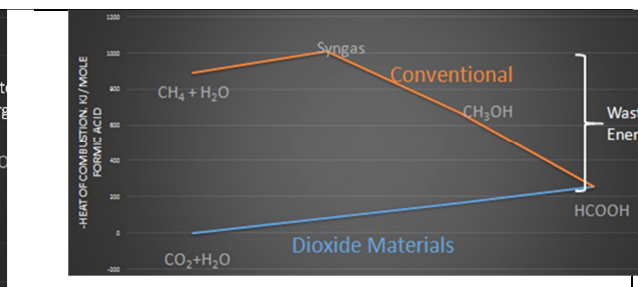
gas. At the moment our process is more expensive for the production of gasoline than gasoline manufactured from petroleum, however parity is achieved if oil process are above \$120/bbl.

There is another route offered where we can leverage. Because the U.S. market can easily adsorb 45 MMT/yr of carbon monoxide (CO), we view the production of fuel ethanol as the largest use of the CO. The EIA reports that in 2011 the US consumed about 40 MMT/yr of ethanol for fuel. Grain stocks are in short supply because of the ethanol production, so that an alternative process that does not require a grain feedstock would serve a real national need. CO is a viable replacement for grain as a feedstock for fuel ethanol production. Lanzatech developed a yeast that converts CO into fuel ethanol directly. Importantly, this process would not require major infrastructure investments, because existing grain ethanol plants could be converted to CO ethanol plants, by simply changing from Ethanol red yeast to Lanzatech’s yeast in the fermenter, and adding pumps and gas holders to circulate the CO. The Lanzatech process uses about 4 tons of CO to produce 1 ton of ethanol, so if CO based ethanol replaced 25% of the grain ethanol in gasoline all 45 MMT/yr of CO would be consumed.

A second major use of carbon monoxide is methanol synthesis. Currently, methanol is made by reacting a mixture of CO and H<sub>2</sub> in a high temperature reactor, In the U.S., the carbon monoxide and hydrogen are generally manufactured via steam reforming of natural gas, yielding syngas with 3 H<sub>2</sub>’s for every CO. Methanol synthesis only uses two of the hydrogens, so the third hydrogen is currently burned. However, if methanol producers had a source of CO, one could use the extra hydrogen to produce more methanol, or alternatively, use less natural gas, thus saving money. Again, no major capital investments would be required, except for pumps and gas holders for the CO. This would present a second major market for the CO. Methanol can be found in many products including solvents, paints, plastics and adhesives, and antifreeze. Formaldehyde production accounts for 27% of the world methanol demand in 2010, and is currently the largest market for methanol, growing at a rate of 5% a year between 2010 and 2015. Though methanol demand for formaldehyde is still expected to be the largest end use in 2015, the demand is growing at a much lower rate than demand for “direct fuel” applications and “other”, which includes methanol-to-olefins (MTO) and methanol-to-propylene (MTP). In particular, China will be requiring motor fuels to contain 10%-20% methanol over the next 5 years.



**Figure 12** Thermodynamic analysis of Dioxide Materials’ route to production of formaldehyde (formic acid hydrogenation) to the conventional process, methanol formation then oxidation.



**Figure 13** Cost Advantage For Formic Acid: Less Wasted Energy

The price advantages come about because our process uses less energy than the incumbent

process, and CO<sub>2</sub> is a much less expensive feedstock than petroleum. For example, Figure 12 compares the thermodynamics of our process for formaldehyde formation and the incumbent process. Our process uses about half as much energy than the conventional process. The result is that our process is about 40% less expensive.

Our formic acid process is similar. We use about 1/4 as much energy in our process, as in the incumbent process CO+methanol → methyl formate, methyl formate + water → formic acid + methanol and we have a much less complex separation. If we run a tin or palladium catalyst in our electrolyzer we form formic acid directly. That route requires about 1/4 as much energy as making methanol, then oxidizing the methanol, as highlighted in Figure 13. Prior to our work, the problem was that the electrolyzers were too inefficient, but Dioxide Materials' technology has overcome that. The effect is that the process is cheaper than the methanol oxidation process. Other products from CO include formic acid, acrylic acid, and polycarbonate. Formic acid is commonly used in Europe and Asia as an animal feed acidifier and as a preservative for grain. Its main effect is to reduce the incidence of salmonella and other bacterial infections, eliminate molds, and eliminate the need to use antibiotics in animal feed. Formic acid is approved for human consumption in the U.S., and it has recently been approved for silage preservation and as a feed supplement for swine. It is not yet approved for cattle or chickens, but the approval process is underway. The experience in Europe and Asia is that formic acid is at least as effective as antibiotics or propionic acid in preventing infection as in inhibiting mold growth. However, it is not usually used in the U.S. or Canada because less expensive alternatives are available. A report by Chemical Economics Handbook forecasts the formic acid market to reach 771,000 MT by 2018, growing at an average annual rate of 3.7%. Most of the present use is in Europe and Asia where formic acid is widely used as a feed acidifier and in silage.

Formaldehyde can be made from methanol, but it can also be made by hydrogenating formic acid. If we make the formic acid by a low energy pathway, then we save about half of the energy we need by the conventional process so the overall process is less expensive than making formaldehyde from methanol. Formaldehyde is different. We have shown that one can make formaldehyde via:  $\text{HCOOH} + \text{H}_2 \rightarrow \text{H}_2\text{CO} + \text{H}_2\text{O}$  so only one hydrogen is needed. Presently hydrogen from natgas costs \$0.77/lb - the newest electrolyzers produce hydrogen at \$1/lb so formaldehyde formation is economic. Formaldehyde production accounts for 27% of the world methanol demand in 2010, and is currently the largest market for methanol, growing at a rate of 5% a year between 2010 and 2015. Though methanol demand for formaldehyde is still expected to be the largest end use in 2015, the demand is growing at a much lower rate than demand for “direct fuel” applications and “other”, which includes methanol-to-olefins (MTO) and methanol-to-propylene (MTP). In particular, China will be requiring motor fuels to contain 10%-20% methanol over the next 5 years

The acrylic acid is different. At present most acrylic acid is made via oxidation of propylene. Presently there is a worldwide shortage of propylene, as naphtha crackers switch to natural gas feeds. So the propylene price has gone up by a factor of 5 in the last 5 years. That makes the incumbent process expensive. Our process uses CO<sub>2</sub> and ethylene or acetylene as feedstocks. Their prices have come down with the falling price of natural gas. The result is that our process is now less expensive than the incumbent process. Acrylic acid is an important industrial chemical. It is used to make an absorbent in diapers, and as a starting material for



films, paints, and acrylic polymers. In 2012, US\$12B (billion) of acrylates were sold and the market is projected to grow to US\$14B by 2018. Growing disposable income, population growth, and strong economic conditions are creating a growing demand for Super Absorbent Polymers (SAP's) for diapers in developing nations in the Asia-Pacific region. A report published in March, 2013 by Markets And Markets forecasts the global acrylic acid market to grow with a CAGR of 5.2% and reach \$14B by 2018. Acrylic acid is an important building block for acrylic resins, which are used in plastics, coatings and adhesives. The acrylic acid market is fairly consolidated, with the top four companies (BASF, Arkema, Dow Chemical, and Nippon Shokubai) accounting for 59% of the global crude acrylic acid capacity, and 47.5% of global acrylate ester capacity.

## 2.5 Compelling Market Indicators

Europe is one of our primary markets for the launch of our electrolyzer pilot plant initiative since Europe is under increased pressure to meet ambitious climate goals that include a 20% emissions reduction by 2020 through a package of related legislation, including emissions trading and renewable energy promotion measures. Due to stringent CSS regulations in Europe, sequestration is not a viable option in Germany, France, Belgium and The Netherlands.

The largest indication of our ability to compete and win in the marketplace is the strong interest and commitment we already have from customers. We realize our product is only as great as our customers think it is, and for that reason we have focused on engaging and getting feedback from customers early on. One of the largest steel producers in the world contacted us saying *“If we don't do something about our CO<sub>2</sub> emissions, we will have to close our plants in Europe.”* With an estimated 3,000,000 MT of CO<sub>2</sub> each year produced in only one of over fifty plants throughout the world, they have expressed a need to find a cost effective process to comply with CCS regulations or face large fines. This immediate need in the market, has enabled us to liaise with various companies abroad who are interested in forming a consortium to address the need for cost effective processes to address CSS regulations and compliance standards.

There is interest to pilot the technology in Europe where the steel company would be the CO<sub>2</sub> source, 3M/DM would pilot the technology, in cooperation with the steel company and the chemical companies who have interest in the output of the process/downstream chemicals. Objective of the consortium would be to “boost of upscaling of electrolytical conversion of CO<sub>2</sub>.”



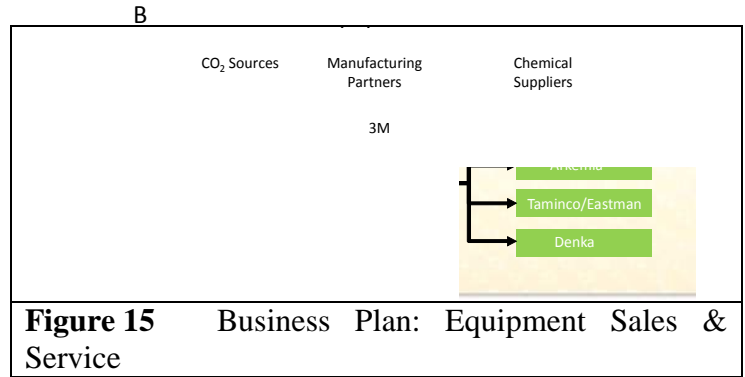
**Figure 14** A steel plant in europe that emits 3,000,000 MT of CO<sub>2</sub>/yr.

## 2.6 Revenue Model

Dioxide Materials will be a purveyor of technology (i.e. licenses) and components that allow chemical manufacturers to make key chemicals at substantially lower cost and allow CO<sub>2</sub> emitters to meet environmental regulations in situations where sequestration is too expensive. Our intent is not to compete with chemical manufacturers, but rather provide them with a more cost effective process to manufacture high value chemicals while utilizing a more energy

efficient process.

As illustrated in Figure 15, we plan to sell the equipment, spare parts and license fees to steel companies and large manufacturing plants, as well as high volume chemical producers such as BASF, Arkemia, Taminco/Eastman, and Denka. We will also provide auxiliary services to equipment purchasers which include chemical sales service and maintenance & repair services to companies that don't want to run the equipment.



**Figure 15** Business Plan: Equipment Sales & Service

Key advantages for using Dioxide Materials' electrolyzer technology include:

- Reduced CO<sub>2</sub> emissions
- Reduced use of fossil fuels
- Path to renewable fuels and chemicals
- Potential to consume millions of tons of CO<sub>2</sub>
- Allows CO<sub>2</sub> sequestration where local geology is unsuitable for underground storage.

Dioxide Materials' plan is use current funding and continue to work with 3M for further development and marketing. 3M has already signed a license for the technology. If 3M cannot meet is contractual financial terms, we will need to pursue venture capitalist funding/investment opportunities to proceed with manufacturing.

## 2.7 How do we make Money?

Consider the steel plant that needs to treat 150,000 MT of CO<sub>2</sub> per year in just one their plants as mentioned previously. To run at best economic (80% up time) at an initial purchase of a \$31M capital investment in our technology (50% gross margin, 25% net profit that is typical for electrolyzers) we will make \$7,700,000 net profit the first year; and during the second year, we will make another \$4.8 M annually or \$2.1 M net profit for spare parts and license fees, see Figure 16.

Scenario	Initial Equipment Purchase from Dioxide	Net Profit	Annual Spare Parts + license fees	Net Profit
80% up time	\$31,000,000	\$7,700,000	\$4,800,000/yr	\$2,100,000/yr
20% up time	\$124,000,000	\$31,000,000	\$4,800,000/yr	\$2,100,000/yr

**Figure 16** Scenarios for Best Economic vs. Grid Leveling

With Grid Leveling (20% up time), the plant can utilize the process only when the utility

has excess energy and benefit even more since the utility company may pay cap cost to offset the capital expenditure since the company would be utilizing excess energy supplies only. With an initial investment of \$124 M, we net \$31 M and another 4.8 M annually or \$2.1 M net profit for spare parts and license fees the second year, etc.

## 2.8 Competition

At Dioxide Materials, we provide cost effective solutions for emissions reductions when carbon dioxide sequestration is not a viable option, as is the case abroad, and we also offer a process for the production of low cost chemicals using waste CO<sub>2</sub> and renewable energy while they produce chemicals from natural gas or pursue biological routes to chemicals. There are various startup companies with similar business plans including Lanza Tech, Skyonic, Joule and Novomer, but all of these companies follow a different revenue model in that they make and sell chemicals and use a process that requires 30-50% more energy.

Our goal is not to compete with the above mentioned incumbents but rather partner with them and other companies as listed below that can benefit from an investment in our energy efficient electrolyzer technology process to produce high volume chemicals:

- Wastewater treatment companies
  - GE water, Degremont Sas, Hitachi, Dow, Calgon, Xylem, 3M ...
  - Includes energy production
- Electrolyzer companies
  - Denora, Asahi Kasei, Permascand , AVS Technology, ThyssenKrupp Uhde, Ineos,
  - Lurgi/Air Liquide, Hydrogenics
- Chemical technology licensing
  - Linde, Air Products, UOP, Dupont, Exxon Mobil, Shell, KBR, Ineos, ...
- Electrolysis as a service
  - Bayer, Uhde Denora

## 2.9 Sales and Marketing

Although we are still in a Research and Development phase, we are actively liaising with various customers and a major U.S. based fortune 100 company, 3M, has been working with us to bring the product to the marketplace. They have provided over \$1M to develop the technology. To date, a major European CO<sub>2</sub> emitter has proposed building a consortium and providing funding to develop our technology to treat their emissions. They are working with a Large Chemical Company and a Mid-size chemical company, a mid-sized (\$7B sales) Japanese chemical company has proposed scaling our process for production of a key chemical. A major industrial gas producer has proposed an evaluation agreement where they would evaluate our technology for their products at their expense.

We are also looking at consortiums with Dioxide Materials playing an intermediate role between CO<sub>2</sub> emitters and chemical producers, licensing technology and providing components

and replacement parts to each. We are not looking to displace the incumbents. Rather our plan is to partner with the incumbents. Potential competitors include Liquid Light, Novomer, etc., and enjoys several key competitive advantages over the competition, including:

Our solutions can seamlessly integrate into a facility since the technology is easily adaptable to our client's needs.

Our technology is a licensable design that can be integrated into OEM systems and products.

## 2.10 Our Strategy

Our go to marketing strategy is designed to partner with customers we have been liaising with in recent years. We plan to sell our technology and spare parts, as well as license fees to customers as noted in Figure 17 under funding entities. We will also provide auxiliary services to equipment purchasers as well as offer chemical sales service support and maintenance and repair services. Through a continued dialogue with strategic contacts, we will gain positive national and international exposure in niche markets.

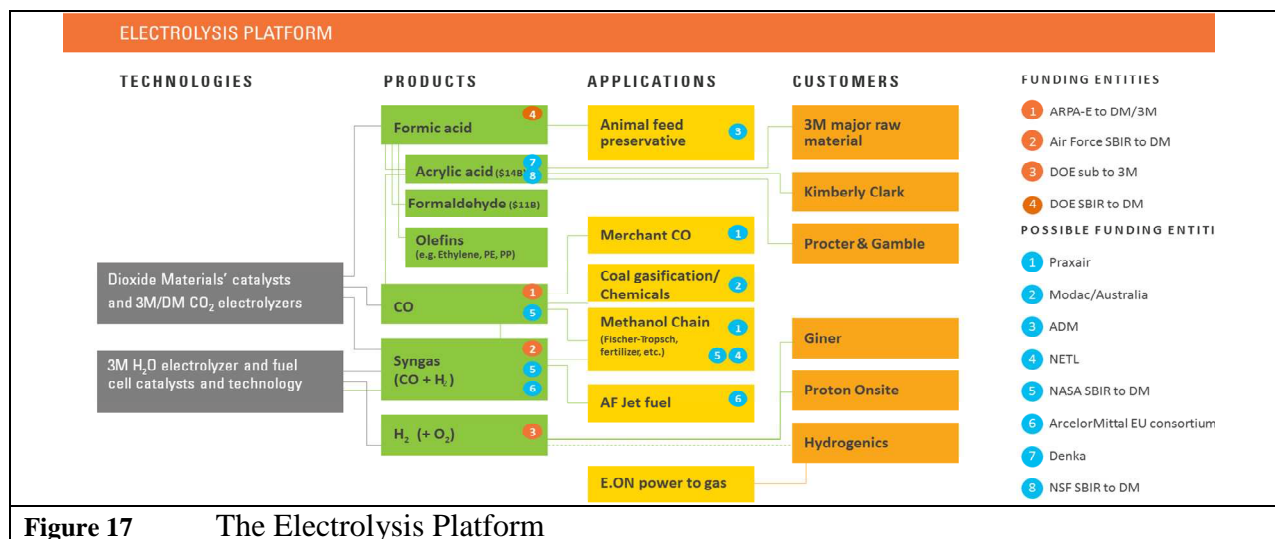


Figure 17 The Electrolysis Platform

We offer unique value propositions as follows:

- We provide a low cost route to key industrial chemicals taking advantage of the fact that CO<sub>2</sub> is an inexpensive carbon source.
- We provide a way for a facility to reduce their CO<sub>2</sub> emissions when sequestration is not viable.
- We provide a method to use excess renewable energy, providing grid demand control and peak shaving.

## 2.11 Management Team

Dioxide Materials is an S-corporation incorporated in Illinois. Presently, we have two office locations, one in Champaign, Illinois and a second in Boca Raton, Florida.

Dioxide Materials currently occupies three 600 ft<sup>2</sup> wet chemistry laboratories and three offices in an incubator building in the University of Illinois Urbana Champaign (UIUC) research park. The labs are equipped with a Parr Reactor, two gas chromatographs (GCs,) multiple mass flow controllers, six potentiostats, three large fume hoods and all of the other equipment we need to do the work. We also have ready access to all of the facilities and stockrooms on the UIUC campus. We use the Scanning Electron Microscopes (SEM) regularly, and x-ray photoemission spectroscopy (XPS) and auger electron spectroscopy (AES) on occasion.

We presently also have a 300 ft<sup>2</sup> lab and an office in the Technology Business Incubator (TBI) . Our current plan is to consolidate all of our operations into a 3500 ft<sup>2</sup> suite in the Research Park at Florida Atlantic University as soon as the needed remodeling is completed.

Our management team has extensive experience in technology development and operations and our manufacturing partner, 3M, has extensive experience sales, marketing, and operations.

Professor Richard I. Masel is the founder and CEO of Dioxide Materials, *one of only four US chemical engineers listed in HighlyCited.com as doing the work that has the most impact since 2000*. Masel retired from the University of Illinois, Urbana Champaign in 2010, where he was the Fox Professor of Chemical and Biomolecular Engineering and a world recognized expert on adsorption and reaction on solid surfaces. He wrote what has become the standard textbook on adsorption: "Principles of Adsorption and Reaction on Solid Surfaces", Wiley, 1996 and is a coauthor of over two hundred fifty journal articles, over four hundred talks, 22 allowed and issued patents and another textbook "Chemical Kinetics and Catalysis", Wiley 2001.

Mike Yoder serves as Operations Manager. He has over 10 years of experience in manufacturing and operations management. Most recently he managed manufacturing operations for iCyt Mission Technology, a biotechnology company which designed and manufactured high end cell analysis and sorting instrumentation. He has experience working on multiple products from initial design and prototyping to commercial release and production including sophisticated research and analysis instruments.

Maria Gainer serves as a Business Development Manager. She has 20 years' experience in sales and marketing and has a proven track record of identifying and interacting with potential customers to test and validate value propositions, learn of pain points and needs, and define product/market fit.

Dioxide Materials also maintains an active Board of Advisors who meet periodically to discuss Dioxide's business direction.

Harlee Sorkin is a principal at Mentor Management, a management consulting company for startup businesses. He is also Director of the Saint Louis Bio Entrepreneur Development Program, the Busey Bank Wealth Management Committee, and the St. Louis Private Fund. He is a consultant to NREL on technology transfer. Harlee was previously COO of Tracor Labs prior to its acquisition by Degussa and served as VP of Marketing for Degussa Bioactives.

Ryan Adelman is President of Adelman Advisory Group and an ex-new business manager for Siemens BT. Ryan has been giving us advice on applications of miniature versions of our devices in the building space.

We have two lawyers doing work for the company, Alan Singleton who provides general business council and legal advice. Bob Fiesler handles all of our patent work and provides general advice on IP issues. Hansen financial does all of our accounting.

## 2.12 Dioxide Materials Financial Revenue History

Year	Commercial Sources	Gov't. Contracts	Consulting	Other	Total
2010	\$121,000	\$46,342			\$167,342
2011	\$165,076	\$272,883	\$2,085	\$244	\$440,288
2012	\$278,500	\$626,569	\$2,450	\$230	\$907,749
2013	\$371,258	\$1,524,846	\$1,759		\$1,897,863
2014	\$318,318	\$2,052,959			\$2,371,277

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## Materials Current & Pending Financial Support

Current Support		
Grant Title	Dates	Objectives
NSF SBIR Phase II: CO <sub>2</sub> sensors for HVAC \$659,000	Sept 15, 2013-sept 30, 2015	Work under this project developed CO <sub>2</sub> sensors for HVAC systems. We are now doing accelerated aging testing to verify long-term performance.
ARPA-E Energy Efficient Electrochemical Conversion of CO <sub>2</sub> Into Useful Products \$3,997,436 + \$999,360 matching from 3M	Feb 1, 2013-Jan 2, 2016	Increase current and lifetime of existing cells for CO <sub>2</sub> electrolysis to CO and scaling the results to the pilot plant scale.
AF STTR Phase II – Conversion of CO <sub>2</sub> and water to syngas Phase II, \$750,000	Nov 1, 2013-Aug 1, 2016	Demonstrate the simultaneous production of CO and H <sub>2</sub> in a miniature electrolyzer.
NOAA: Optimized CO <sub>2</sub> Gas Sensor for Autonomous Measurement of Ocean Carbon \$95,000	July 1, 2014-Dec 31, 2014	Redesign the sensors so that they can meet NOAA's requirements.
DOE SBIR Phase IIB: Cells, Membranes and Separators for Carbon Dioxide Conversion to Formic Acid \$1,010,000 (Follow-on to successful Phase II)	April 15, 2014-April 16, 2016	Scale-up of existing cells for the production of formic acid via a modification of reaction 1. Also, develop the balance of plant for the system.
Pending proposals		
NSF SBIR Phase I: Production of a Polymer Intermediate (\$150,000)	July 1, 2015-dec 31, 2015	Develop a process for acrylic acid production
NASA SBIR: Room Temperature Electrolyzers For Oxygen Generation On Mars (\$100,000)	July 1, 2015-Dec 31, 2015	Develop an electrolyzer for oxygen production on mars
DOE Phase I Proposal: SBIR	July 1, 2015-Dec 31,	Develop CO <sub>2</sub> sensors for

Phase I: Miniature CO2 Sensors for Geochemical Monitoring (\$150,000)	2015	groundwater monitoring
DE Phase I Proposal: NETL Proposal for a Carbonate Scrubber with Electrochemical Stripping (\$2,900,000)	January 1, 2016-Dec 31, 2018	Develop a Carbonate Scrubber with Electrochemical Stripping

### **3 PROPOSED COLLABORATIVE EFFORTS**

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Dioxide Materials proposes several different types of collaborations with FAU.

- 1) Internships – Dioxide will want to establish a formal Internship program for both Part Time & Full Time Employment of FAU students. We already have hired one FAU student, and will have openings for two more students once we have space to put them.
- 2) Part Time & Full Time Employment opportunities for FAU alumni
- 3) Proposed Affiliate Appointment for Dr. Richard Ni, Dioxide Materials’ Chief Scientist at our Boca Location and a sensor expert
- 4) Possible joint work/funding on sensor systems and electrolyzers
- 5) Prof Masel may be giving a course at FAU on Research Planning and Proposal Writing. This will be similar to a course he taught at the University of Illinois, Urbana-Champaign

We believe that Dioxide Materials’ sensor business has the potential for many collaborations within the college FAU. Dean Ilyas is interested in building a sensor cluster in the engineering college at FAU, and Dioxide Materials is developing the smallest, lowest power CO<sub>2</sub> sensors in the market. Toward that end, we had proposed and Dean Ilyas has agreed that the PI for Dioxide Materials’ sensor efforts, Zheng Richard Ni, be granted an affiliate appointment in the College. Richard proposes to be working people in the Department of Computer and Electrical Engineering and Computer Science in the college. In particular Jason Hallstrom has discussed developing sensor systems around Dioxide Materials sensors.

There are also two current openings for FAU interns to work with Dioxide Materials’ sensor efforts. One on electronics and one on packaging. Dioxide Materials does not have space for the students now, but will have space once we move into the proposed facility.

There also may be some opportunities to collaborate with FAU faculty on Dioxide Materials’ electrolyzers. These opportunities still need to be developed, but electrolyzers are very similar to fuel cells and Ali Zilouchian and Amir Abtahi have done work on fuel cells. We can imagine having a FAU graduate student working in Dioxide Materials’ electrolyzer labs.

Finally, it is likely that our CEO, Professor Rich Masel, will be helping faculty at FAU find federal funding for their efforts. Presently, Dioxide Materials’ annual federal funding (~\$2.3M/yr) is similar to the total federal funding of the FAU Engineering College. Professor Masel taught a course in research planning and grant writing while he was a professor at the University Of Illinois, Urbana Champaign, a top 5 engineering college.

## **4 POSSIBLE CONFLICT OF INTERESTS**

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None

## **5 REVIEW & OVERSIGHT**

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Dr. Jason Hallstrom will be the primary point of contact for Dioxide Materials in the College of Engineering.

Andrew Duffell at the Research Park will facilitate other contacts, including with the Division of Research.



RESOLUTION 15-8

**RESOLUTION OF THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY APPROVING A TWO-YEAR SPONSORSHIP AGREEMENT WITH COMCAST CABLE COMMUNICATIONS MANAGEMENT, LLC UNDER WHICH THE AUTHORITY WOULD RECEIVE REDUCED RATES FOR INTERNET, TELEPHONE, AND TELEVISION SERVICES AND COMCAST WOULD RECEIVE CERTAIN ADVERTISING AND SPONSORSHIP RIGHTS FROM THE AUTHORITY, INCLUDING MARKETING EXCLUSIVITY FOR BROADBAND COMMUNICATIONS SERVICES; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the Florida Atlantic Research and Development Authority (the "Authority") was created by the County Commissions of Palm Beach and Broward Counties pursuant to Chapter 159, Florida Statutes;

WHEREAS, the Authority has the power to enter into contracts in furtherance of its public purpose(s) as set forth in Florida Statutes, §159.705(5);

WHEREAS, in order to better serve its public purpose(s), the Authority requires internet, telephone, and television services;

WHEREAS, Comcast Cable Communications Management, LLC ("Comcast") is in the business of providing broadband communication services;

WHEREAS, the Authority and Comcast desire to enter into the Sponsorship Agreement attached hereto as Exhibit "1" under which the Authority would receive the following services at a reduced rate: (i) one (1) Gigabyte Dedicate Ethernet service; (ii) ten (10) seats of Comcast Business VoiceEdge™ service; and (iii) Preferred TV with the X1 Platform on two (2) outlets; and

WHEREAS, in exchange, Comcast would receive, among other things, marketing exclusivity in the area of broadband communications services, and other benefits as further delineated in Exhibit "1."

NOW THEREFORE, BE IT RESOLVED BY THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY THAT:

1. Each and every whereas clause set forth above is a true and correct recital and representation and is incorporated herein as if set forth fully.
2. The Authority approves the Agreement attached as Exhibit "1."
3. The President and CEO is hereby directed and authorized to enter into such Agreement. Non-material and non-substantive changes necessary to finalize the Agreement are permitted and approved.
4. This Resolution shall be effective upon its adoption.

ADOPTED THIS \_\_\_\_\_ DAY OF APRIL, 2015

BY: \_\_\_\_\_  
BRUCE ROSETTO, CHAIR

## **SPONSORSHIP AGREEMENT**

**THIS SPONSORSHIP AGREEMENT** (“Agreement”) is entered into this 4th day of March, 2014 (the “Effective Date”), by and between Comcast Cable Communications Management, LLC (“Comcast”), a Delaware limited liability company, with offices at 1701 John F. Kennedy Boulevard, Philadelphia, Pennsylvania, 19103, and the Florida Atlantic Research and Development Authority (the “Authority”), a body politic and corporate created by Palm Beach County and Broward County pursuant to Florida Statutes Chapter 159, with an address at 3651 FAU Boulevard, Suite 400, Boca Raton, Florida 33431. Comcast and the Authority may each be referred to as a “Party” and collectively, “Parties” hereunder.

### **RECITALS**

**A. WHEREAS**, Comcast through its affiliates and subsidiaries provides broadband communications services throughout its serviceable areas; and

**B. WHEREAS**, the Authority operates a business incubator called the Technology Business Incubator® (“TBI”), which provides facilities, technology and other shared resources to entrepreneurs; and

**C. WHEREAS**, the Authority has certain rights to sell advertising and sponsorship rights with respect to TBI located at 3651 FAU Boulevard, Suite 400, Boca Raton, Florida 33431 (the “Facility”), and to allow Comcast to use the Facility and install Comcast Services (as defined herein) at the Facility as set forth in this Agreement; and

**D. WHEREAS**, the Parties desire to enter into a sponsorship agreement in accordance with the terms and provisions of this Agreement.

### **AGREEMENT**

**NOW THEREFORE**, in consideration of the mutual covenants and agreements set forth in this Agreement, the parties do hereby agree as follows:

#### **1. SPONSORSHIP ELEMENTS.**

In consideration for the sponsorship support received from Comcast pursuant to Section 4 below, the Authority agrees to provide the Benefits described in Exhibit A attached hereto.

#### **2. TERM & TERMINATION.**

**A. Term.** The Agreement shall commence on the Effective Date. The term of this Agreement (the "Term") shall be two years (2) years from the Effective Date (each year during the Term shall be referred to as a “Year”), and the Term expires on April 22, 2017, unless terminated earlier pursuant to the terms of this Agreement.

- B. Termination for Convenience. This Agreement may be terminated by either party, with or without cause, but must provide sixty (60) days prior written notice of termination.
- C. Events of Default. A Party shall be in default hereunder if any of the following events shall occur:
- i. Such Party fails to timely perform any of its material obligations hereunder and such default shall continue for a period of thirty (30) days following receipt of written notice from the other Party specifying such default. If the default specified in such notice is curable but of a nature such that it cannot be cured through the exercise of reasonable diligence within the thirty (30) day cure period, then such thirty (30) day cure period shall be extended to a period as is reasonable (but in no event more than ninety (90) days) to cure such default, provided the non-performing Party has proceeded at all times and is continuing to proceed in a diligent and reasonable matter to cure; or
  - ii. Such Party becomes insolvent, or takes the benefit of any present or future insolvency statute; or makes a general assignment for the benefit of creditors, or files a voluntary petition in bankruptcy or a petition or answer seeking an arrangement or its reorganization or the readjustment of its indebtedness under the federal bankruptcy laws or under any other law or statute of the United States or of any State thereof, or consents to the appointment of a receiver, trustee, or liquidator of all or substantially all of its property; or
  - iii. By order or decree of the court such Party is adjudged bankrupt or an order is made approving a petition filed by any of its creditors or by any of its stockholders or partners, seeking its reorganization or the readjustment of its indebtedness under the federal bankruptcy laws or under any law or statute of the United States or any State thereof; or
  - iv. A petition under any part of the federal bankruptcy laws or an action under any present or future insolvency law or statute is filed against such Party and is not dismissed or stayed within sixty (60) days after the filing thereof.
- D. Breach of Contract. If a Party is in default hereunder beyond applicable grace or cure periods, the other Party shall be entitled to terminate the Agreement or seek specific performance, and in any event may sue for damages.

### 3. INTELLECTUAL PROPERTY.

- A. The Authority Marks. The Authority hereby authorizes Comcast to use the TBI trade name, trademarks and logos, together with all other marks and identifying insignia approved in writing by the Authority solely in connection with this Agreement (collectively, the “Authority Marks”). Comcast acknowledges the Authority’s exclusive ownership of the Authority’s Marks and agrees to do nothing inconsistent with such ownership including, without limitation, applying to register the Authority’s Marks or using the Authority’s Marks in any manner not authorized hereunder.

Prior to using the Authority’s Marks, Comcast shall send the Authority a sample showing Comcast’s intended use of the Authority’s Marks. Comcast’s proposed use of the Authority’s Marks is subject to the Authority’s written approval, which will not be unreasonably withheld. Authority must provide written approval of any use of the its Marks by Comcast. Once the Authority initially approves use of its Marks, Comcast may subsequently use them without necessity of obtaining the Authority’s consent. Upon termination of this Agreement or upon the Authority’s request, Comcast shall cease such use of the Authority’s Marks.

The Authority represents and warrants to Comcast that it owns or has all requisite authorizations, approvals and licenses in and to the Authority’s Marks required to authorize Comcast to use the Authority Marks in the manner specified under this Agreement.

- B. Intellectual Property. The Authority represents and warrants to Comcast that it either owns or has obtained the rights to use, perform, reproduce and display (and to grant Comcast similar rights) all intellectual property provided or selected for use by the Authority, including, but not limited to, video footage, photographs, music, lyrics, artwork, voices, likenesses, graphics, slogans, ideas, creations, trademarks, trade names, and trade dress (the “Intellectual Property”). The Authority hereby grants to Comcast, subject to the Authority’s prior written approval, which will not be unreasonably withheld, a non-exclusive right to perform, reproduce and distribute the Intellectual Property solely in connection with this Agreement.

- C. Comcast Marks. Comcast hereby authorizes the Authority to use its trade name, trademarks and logos, together with all other marks and identifying insignia approved by Comcast in connection with the Agreement (collectively, the “Comcast Marks”). The Authority acknowledges Comcast’s exclusive ownership of the Comcast Marks and agrees to do nothing inconsistent with such ownership including, without limitation, applying to register the Comcast Marks or using the Comcast Marks in any manner not authorized hereunder.

Prior to using the Comcast’s Marks, the Authority shall send Comcast a sample showing the Authority’s intended use of Comcast’s Marks. The Authority’s proposed use of Comcast’s Marks is subject to Comcast’s written approval, which will not be unreasonably withheld. Once Comcast initially approves use of its Marks, the Authority may subsequently use them without necessity of obtaining

Comcast's consent. Upon termination of this Agreement or upon Comcast's request, the Authority shall cease such use of Comcast Marks.

Comcast represents and warrants to the Authority that it owns or has all requisite authorizations, approvals and licenses in and to the Comcast Marks required to authorize the Authority to use the Comcast Marks in the manner specified under this Agreement.

**4. CONSIDERATION.**

A. Consideration. In consideration for the Benefits granted and subject to the terms and conditions herein, during the Agreement, Comcast agrees to provide the Facility with (i) 1 Gigabyte Dedicate Ethernet service; (ii) Ten (10) seats of Comcast Business VoiceEdge™ service; and (iii) Preferred TV with the X1 Platform on Two (2) outlets at the Facility. The Comcast Services shall be provided under a Service Order Agreement executed by the parties, in accordance with the Business Services Customer Terms and Conditions found at <http://business.comcast.com/terms-conditions-smb>, and shall terminate at the expiration of this Agreement unless otherwise mutually agreed to in writing by the parties.

**5. REPRESENTATIONS AND WARRANTIES**

The Parties hereby represent and warrant that they have the full right and authority to enter into this Agreement and have taken all necessary action to authorize the execution, delivery and performance of this Agreement.

**6. FORCE MAJEURE**

A. No Party shall be liable or responsible for any failure to perform its obligations hereunder, which failure is caused or brought about in any manner by a Force Majeure event. Upon any such Force Majeure Event, the affected Party's obligations hereunder shall be suspended and the other Parties shall have no right to terminate this Agreement or to seek damages, provided the affected Party acts diligently to effect timely performance of its obligations.

B. For the purpose of this Agreement, a "Force Majeure Event" shall mean any cause beyond the reasonable control and not due to the willful misconduct of the Party affected, and which could not have been avoided by due diligence and use of reasonable efforts, including without limitation drought, flood, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance, sabotage, acts of terrorism, explosions, strikes, lock-outs or labor disputes, or orders or judgments of any governmental entity.

**7. INDEMNIFICATION**

A. The Authority shall indemnify, and hold Comcast its officers, agents, and employees, harmless from and against any and all liability, loss, expense, including reasonable attorney's fees, or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent

such liability, loss, expense, attorney's fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of the Authority, its officers, agents, or employees.

- B. Comcast shall, indemnify, and hold the Authority, its officers, agents, and employees, harmless from and against any and all liability, loss, expense, including reasonable attorney's fees, or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent such liability, loss, expense, attorney's fees, or claims for injury or damages are caused by or result from the negligent or intentional acts or omissions of Comcast, its officers, agents, or employees.

**8. LIMITATION OF LIABILITY.**

EXCEPT WITH RESPECT TO CLAIMS ARISING OUT OF A BREACH OF A PARTY'S CONFIDENTIALITY OBLIGATIONS HEREUNDER OR THE INDEMNIFICATION OBLIGATIONS OF EITHER PARTY HEREUNDER, THE PARTIES SHALL NOT BE LIABLE TO EACH OTHER FOR ANY LOST PROFITS, SPECIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO FRUSTRATION OF ECONOMIC OR BUSINESS EXPECTATIONS, LOSS OF PROFITS, LOSS OF CAPITAL, COST OF SUBSTITUTE PRODUCT(S), FACILITIES OR SERVICES, OR DOWN TIME COST, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**9. MISCELLANEOUS.**

- A. Headings. The descriptive headings of the sections of this Agreement are inserted for convenience only and shall not control or affect the meaning or construction of any of the provisions hereof.
- B. Entire Agreement. This Agreement constitutes the entire agreement among the Parties and supersedes any and all prior agreements of the Parties and shall become a binding and enforceable Agreement among the Parties hereto and their respective and permitted assigns. No prior verbal or written agreement shall survive the execution of this Agreement. In the event of an alteration of this Agreement, the alteration shall be in writing and shall be signed by the Parties in order for the same to be binding upon the Parties.
- C. Assignment. This Agreement and the rights and obligations of the Parties hereunder may not be assigned without the prior written approval of the other Parties, which approval shall not be unreasonably withheld; provided that Comcast may assign this Agreement to any person acquiring all or substantially all of its assets or stock.
- D. Notices. All notices and other communications hereunder will be in writing and shall be mailed by registered or certified mail (return receipt requested) or sent via nationally recognized courier service such as United Parcel Service or Federal

Express to the parties at the following addresses (or at such other address for a party as will be specified by like notice):

If to Comcast:

Comcast Cable Communications Management, LLC  
1701 John F. Kennedy Boulevard  
Philadelphia, Pennsylvania 19103  
Attention: Karen Schmidt, Vice President

With a copy to:

Comcast Cable Communications, LLC  
1701 John F. Kennedy Boulevard  
Philadelphia, Pennsylvania 19103  
Attention: Cable General Counsel

If to the Florida Atlantic Research and Development Authority:

3651 FAU Boulevard, Suite 400  
Boca Raton, Florida 33431  
Attention: Andrew Duffell

- E. Governing Law. This Agreement will be governed by the laws of the state of Florida without regard to conflict of laws principles.
- F. Confidentiality. Each Party and its affiliates and their respective directors, officers, employees and agents (collectively, a "Discloser") may disclose to the other Party or its affiliates or respective directors, officers, employees or agents (collectively, a "Recipient") certain Confidential Information (as defined below). Confidential Information includes, but is not limited to, information pertaining to the Discloser's business (including the terms of this Agreement) that is not generally known by or available to Discloser's competitors, information provided to the Recipient by the Discloser that a reasonable person would consider to be confidential (the "Confidential Information"). Comcast's Confidential Information shall also include, but not be limited to; the names, addresses, e-mail addresses and telephone numbers of all subscribers and prospective subscribers to any product or service offered by Comcast, as well as any other personally identifiable information relating to such subscribers ("PII"); and any other information relating to any Comcast's subscribers, including all lists or other records containing any such information, even if such information is aggregated.

Each Party agrees that during and after the term of this Agreement, neither Party nor any representative or agent, or other entity affiliated with, employed by or otherwise connected with either Party shall directly or indirectly, without the express written consent of the other Party, disclose, give away, or transfer in any way any Confidential Information of the other Party. Each Party acknowledges that any Confidential Information that has been disclosed to it by the other Party

has been disclosed solely for the purpose of enabling the Recipient to obtain the benefits hereunder.

The Authority hereby acknowledges that Comcast has a special responsibility under the law to keep PII private and confidential. The Authority agrees that it shall use such information in strict compliance with Section 631 of the Cable Communications Policy Act of 1984, as amended (47 U.S.C. Sec. 551) and all other applicable laws governing the use, collection, disclosure and storage of such information.

Upon the expiration or termination of this Agreement or upon the Discloser's request, the Recipient shall return all Confidential Information to the Discloser or at the Discloser's option, destroy all Confidential Information and provide a written certification signed by an officer of the Recipient, certifying that all Confidential Information in all formats, including without limitation, paper, electronic and disk form, have been returned or destroyed, as the case may be. Except as expressly set forth above, no public announcement of the existence of this Agreement or its terms and conditions shall be made unless such announcement is approved in advance by both Parties to this Agreement.

Comcast acknowledges that the Authority is a public entity subject to Florida's Sunshine Laws and Public Records Act. The Authority shall have no liability for the disclosure of information, including Confidential Information that is disclosed pursuant to Florida's Sunshine Laws and/or Public Records. Nothing in this Agreement is intended to contravene such laws.

- G. Amendments. No provision of this Agreement shall be modified, waived or otherwise amended except by written instrument signed by each of the Parties hereto.
- H. Waiver. The waiver by any Party of a breach or violation, or failure of any of the Parties to enforce, any provision of this Agreement shall not operate or be construed as a waiver of any subsequent breach or violation or relinquishment of any rights hereunder.
- I. Survival. Termination of this Agreement shall not impair the Party's then accrued rights, obligations or remedies. Sections 7, 8, 9(E) and 9(F) shall survive termination of this Agreement.
- J. Severability. If any provision of this Agreement shall be held invalid or unenforceable, the remaining provisions shall continue to be in full force and effect.
- K. Authorization. Each party represents and warrants to the other Parties that it has the right and authority to enter into this Agreement.
- L. No Joint Venture. This Agreement shall not be deemed to create a joint venture amongst the Parties hereto.



**IN WITNESS WHEREOF**, the undersigned have duly executed this Agreement as of this 4th day of March, 2015.

**Comcast Cable Communications Management, LLC**

By:

Signature: \_\_\_\_\_

Name (print): \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Florida Atlantic Research and Development Authority**

By:

Signature: \_\_\_\_\_

Name (print): \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_ **EXHIBIT A**

**Sponsorship Rights and Benefits**

In exchange for sponsorship support described above, the Authority will provide Comcast with the rights and benefits described herein (“Benefits”). In the event that the Authority elects to move the Facility to another location (“Other Venue”), Comcast shall be entitled to all rights and Benefits under this Agreement at the Other Venue.

**1. MARKETING EXCLUSIVITY:**

- A.** Comcast shall receive category exclusivity in the broadband communications services categories including multichannel video programming (cable television and direct broadcasting satellite), video on demand services, wire line and WiFi Internet services, wire line phone, home security and control services for residential and business customers (“Exclusive Category”) with respect to the Authority including but not limited to the Jumpstart Project and all signage

and promotion of all events taking place at the Facility. Without limiting the foregoing, the Authority shall not permit any other provider of any service covered under the Exclusive Category to be a sponsor of the Authority, at the Facility or to display signage or promote its services at any events taking place at the Facility during the Term. Comcast shall be permitted to use the following designations:

- “Official Business Sponsor [or Provider] of the Technology Business Incubator®
- “Official Internet Provider of the Technology Business Incubator®
- “Official Business Internet Provider of the Technology Business Incubator®

## **2. OTHER BENEFITS:**

### **2-Year Sponsorship Benefits**

- i. Comcast shall receive Comcast and/or XFINITY permanent signage placed displayed in the prime locations throughout and outside of the Facility, which locations shall be mutually agreed to by the Parties.
- ii. Comcast shall be recognized as an exclusive sponsor on the Technology Business Incubator® website.
- iii. Comcast shall receive the status of being the official ‘Signature Partner’ and a mention as a Technology Partner in press releases, information material and through media engagements.
- iv. Co-branding in press releases, promos, website and introductory material – Comcast Business logo on the press releases by the incubator about the partnership, as well as a central sizeable position among partner logos on website and intro material
- v. Promotional visits and/or communication to brief tenants, management and other partners – extend the opportunity to Comcast Business regional personnel to come periodically to promote services and new technologies
- vi. Future sponsorship at incubator events at reduced fees - extending of sponsorship opportunities to Comcast Business at various events that the incubator hosts or organizes
- vii. Opportunity to showcase Comcast’s products and services – extend the opportunity for Comcast Business to showcase its products and services at networking and other industry events that the incubator hosts or organizes

- viii. Comcast shall have access to and use of the Facility, including but not limited to for the purpose of:
  - (a) Signage and use of space in the TBI space of the Facility for product demonstrations including those relating to Comcast Business TV, Comcast Business Internet, Comcast Business Voice, and/or other Comcast Business products and services.
  - (b) Use of the Facility eight (8) times per year for Comcast employee or other functions, including but not limited to Comcast Business activities, product launches and community investment announcements;
- ix. Comcast Business will be allowed to send an email distribution to all Authority current and new tenants (with prior consent from them) during the agreement period, about our initiatives, products and services.
- x. The Authority will notify Comcast Business of any tenant exiting the Facility for permanent office space; referrals may be submitted through the Comcast Business Authorized Connector program.
- xi. The Authority will, in good faith, recommend Comcast Business to extended network of partners, customers and affiliates.
- xii. Ability for Comcast executives to serve as mentors in future Authority incubator programs.
- xiii. Comcast will receive ten ('10) number of complimentary affiliate memberships so that designated Comcast Business representatives can attend members-only events at or outside of the incubator's facility.

3. **MAKE GOOD:** The Authority agrees that if for any reason (other than Comcast's breach of the Agreement) Comcast does not receive any of the Benefits described herein, the Parties shall negotiate in good faith for comparable make-good consideration.

## RESOLUTION 15-9

### **RESOLUTION OF THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY SUPPORTING AT LEAST A \$20 MILLION ANNUAL INVESTMENT BY THE STATE OF FLORIDA TO MARKET AND BRAND FLORIDA'S IMPROVING BUSINESS CLIMATE, EDUCATIONAL PERFORMANCE AND COMPETITIVENESS; AND PROVIDING FOR AN EFFECTIVE DATE.**

WHEREAS, the Florida Atlantic Research and Development Authority (the "Authority") was created by the County Commissions of Palm Beach and Broward Counties pursuant to Chapter 159, Florida Statutes;

WHEREAS, one of the Authority's public purposes is to foster and support economic development;

WHEREAS, one of the best ways to foster economic development is to receive State support;

WHEREAS, the state of Florida should be proactive in attracting jobs and new business to our State;

WHEREAS, other states, such as New York, Texas and Ohio use print, internet and television media to market businesses to their state;

WHEREAS, in 2013, California spent at least \$50 million promoting its state's business climate to businesses outside of its borders;

WHEREAS, in 2013, Connecticut spent at least \$27 million promoting its state's business climate to businesses outside of its borders;

WHEREAS, in 2013, Michigan spent at least \$25 million promoting its state's business climate to businesses outside of its borders;

WHEREAS, Enterprise Florida has created a professionally-developed branding campaign, "the perfect climate for business," that highlights Florida's competitiveness;

WHEREAS, Florida has been ranked by *Chief Executive Magazine* as the No. 2 state in the United States in which to do business;

WHEREAS, Florida has numerous resources to help grow and support new and relocating businesses, such as Enterprise Florida, the Department of Economic Opportunity, Grow Florida, the Florida Economic Development Council, the Small Business Development Center, Local Chambers of Commerce, the Florida High Tech Corridor Council, and more;

WHEREAS, Florida's business community previously piloted a \$1.7 million project to support Florida's business brand and marketing efforts;

WHEREAS, Florida has the best tax climate in the Southeast, according to the Tax Foundation; and

WHEREAS, Florida has earned top rankings in Harris Poll's most desirable places to live since the survey's inception.

NOW THEREFORE, BE IT RESOLVED BY THE FLORIDA ATLANTIC RESEARCH AND DEVELOPMENT AUTHORITY THAT:

1. Each and every whereas clause set forth above is a true and correct recital and representation and is incorporated herein as if set forth fully.
2. The Authority encourages Florida's Executive and Legislative leaders to allocate at least \$20 million to Enterprise Florida in an effort to fund a professionally-managed marketing and branding campaign in targeted states to help raise awareness of the many improvements Florida has made to its education and tax climate.
3. This Resolution shall be effective upon its adoption.

ADOPTED THIS \_\_\_\_\_ DAY OF APRIL, 2015

BY: \_\_\_\_\_  
BRUCE ROSETTO, CHAIR

s Future

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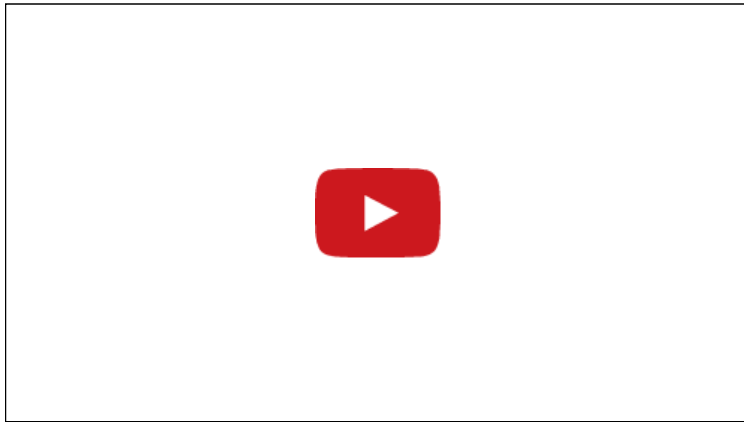
FOUNDATION

ISSUES & LEGISLATION

POLITICAL

GET INVOLVED

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increasingly friendly business climate. That's why we are asking the Florida Legislature to invest a minimum of \$20 million annually. The award winning initiative, titled "The Perfect Climate for Business" will be led and managed by one of the best economic development agencies in the world: Enterprise Florida.

Our state is moving in the right direction, but Florida can no longer rely on sunshine and word-of-mouth alone to tell our success story. Join our effort to help market Florida by signing up to help make the campaign a success. You will be added to our email information exchange and we'll share how you can help in the near future.

[Download](#) a one-pager or [Click here](#) to sign up today!

### View the Campaign



[Download Aviation Ad](#)



[Download Business Climate Ad](#)



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### Updates

- Bay County Chamber, JAX Chamber and JAXUSA Join the Market Florida Initiative (3/23/15)
- Preliminary House Budget has \$0 for "Market Florida Initiative" (3/23/15)
- Preliminary Senate budget has \$5 million for "Market Florida Initiative" (3/23/15)
- Okeechobee County Commission: First Elected Body to Support Market Florida Initiative (3/10/15)
- General Electric: First Private-Sector Company to support the Market Florida Initiative (3/10/15)

For more information on our Market Florida effort, please email Carolyn Johnson at

[cjohnson@flchamber.com](mailto:cjohnson@flchamber.com).

### Partners

- Bay County Chamber of Commerce
- Bradenton Area Economic Development Corporation
- Business Development Board of Palm Beach County
- Chamber of Commerce of the Palm Beaches
- Destin Area Chamber of Commerce
- Economic Council of Martin County

- Enterprise Charlotte Economic Council
- Enterprise Florida, Inc.
- Florida Chamber of Commerce
- Florida Economic Development Council
- Florida Ports Council
- Florida State Hispanic Chamber of Commerce
- Gainesville Area Chamber of Commerce
- General Electric
- Greater Boca Raton Chamber of Commerce
- Greater Tallahassee Chamber of Commerce
- Greater Tampa Chamber of Commerce
- Gulf Breeze Area Chamber of Commerce
- Holmes County Economic Development Commission
- JAX Chamber
- JAXUSA
- Manatee Chamber of Commerce
- Okeechobee County Commission
- Orlando, Inc.
- Palm Beach Chamber of Commerce
- Panama City Beach Chamber of Commerce
- Putnam County Chamber of Commerce
- Walton Area Chamber of Commerce
- Wesley Chapel Chamber of Commerce

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**BE PART OF THE SOLUTION. LEARN HOW YOU CAN HELP SECURE FLORIDA'S FUTURE.**

**LEARN MORE**



## Securing Florida's Future

Florida Chamber of Commerce  
136 S. Bronough Street  
Tallahassee, Florida 32301

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Email: [info@flchamber.com](mailto:info@flchamber.com)

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