Growth Opportunities in the Global Composites Industry

SPE ACCE
September, 2011

Copyright © Lucintel
Table of Contents

• Executive Summary

• Composites Competitiveness and Market Opportunity

• Market Trends and Opportunity

• Growth Opportunities in 2011 and Beyond

• Conclusions

• About Lucintel
Executive Summary

- Global composite materials industry reached $17.7 B in 2010, YOY growth of 10.3%
  - Major industries rebounded after 2009 slowdown from economic crises
- End product market made with composites in 2010 was $50.2 B
- North American composites industry accelerated by ~13% in 2010, while Europe accelerated by ~8% and Asia grew by ~9% in 2010
  - Driven by Government economic stimulus package and increased consumer confidence
- By 2016, composite materials industry is expected to reach $27.4 B (7.8% CAGR) while end product market made with composite materials expected to reach $78.0 B
- Global Automotive Composite Materials market was estimated to be around $2.4 B in 2010, forecast to reach $3.7 B by 2016 @ CAGR of approx. 8%
- Demand for low weight, fuel efficiency & reduced emissions will drive the usage of composites in automotive industry
  - NA automotive market has shown a positive growth after a setback in 2009
  - European market has more penetration for composite usage in automotive applications
- Population growth, new infrastructure projects, urbanization, increase in middle class population and green movement will drive composites growth to new horizons
- Companies with innovation capability will sustain and gain market share in future
Table of Content

• Executive Summary

• Composites Competitiveness and Market Opportunity

• Market Trends and Opportunity

• Growth Opportunities in 2011 and Beyond

• Conclusions

• About Lucintel
## Composites Penetration in Various Market Segments

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Composite Materials Market</th>
<th>Structural Materials Market (Steel, Al &amp; Composites)</th>
<th>Composites Penetration</th>
<th>Performance Gap</th>
<th>Price Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>$2.7 B</td>
<td>$75.7 B</td>
<td>3.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine</td>
<td>$0.5 B</td>
<td>$0.7 B</td>
<td>68%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerospace</td>
<td>$2.0 B</td>
<td>$19.1 B</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe &amp; Tank</td>
<td>$2.1 B</td>
<td>$29.6 B</td>
<td>7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$3.1 B</td>
<td>$78 B</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wind Energy</td>
<td>$2.0 B</td>
<td>$5.4 B</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>$1.1 B</td>
<td>$7.7 B</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Lucintel

### Composites Penetration compared to Competing Materials (Steel & Al)

- **0% – 25%**
- **25% – 50%**

![Graph showing composites penetration by market segment](image)
## Composites in Automotive

### Key Insights

- Global Automotive Composite Materials market was $2.4 B in 2010

- Glass fiber-reinforced polymer composites (SMC, GMT, etc.) are cost effective around 100K units per annum due to lowered tooling cost

- High cost of materials and lack of suitable high volume manufacturing processes for applications continue to be limiting factors for growth

- Carbon fiber usage will remain limited to high end & premium segment cars

- Advent of lower (than aerospace) cost and performance carbon fiber could open a new era for composites in high-volume applications

### Application

<table>
<thead>
<tr>
<th>Body Panels, Parts</th>
<th>Key Composite Materials</th>
<th>Key Manufacturing Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Headliners</td>
<td>Polyurethane, LWRT</td>
<td>RIM, Injection molding</td>
</tr>
<tr>
<td>Air Intake Manifold</td>
<td>SFT</td>
<td>Injection molding</td>
</tr>
<tr>
<td>Front End Carriers</td>
<td>LFT, SMC</td>
<td>Injection molding, Compression molding</td>
</tr>
<tr>
<td>Engine Valve Covers</td>
<td>SFT, BMC</td>
<td>Injection Molding</td>
</tr>
<tr>
<td>Bumper Beams</td>
<td>GMT, SMC, Polyurethane</td>
<td>Injection Molding, Compression Molding, RIM</td>
</tr>
<tr>
<td>Fenders</td>
<td>SMC, LCM</td>
<td>Compression molding</td>
</tr>
<tr>
<td>Hoods</td>
<td>SMC, LCM</td>
<td>Compression molding</td>
</tr>
</tbody>
</table>

### Key Composite Materials

- Chassis
- Roof
- Hood panels
- Front Bumper
- Leaf Spring
Weight savings, fuel economy and other performance benefits will fuel the growth of composite consumption in Automotive applications.

**Global Automotive Composite Materials market (2010-16) in $B**

- 2010: 2.4
- 2016: 3.7

Source: Lucintel

**Key Insight**
- EU has a significant share of composite usage in automotive applications, followed by the US
- Emerging economies from APAC & ROW will substantially drive composites usage in automotive applications in the future
- Global Automotive Composite Materials market is estimated to grow @ CAGR 8% to 2016

**Drivers**
- Light Weight: GFRP reduces fabricated part weight by 20-30% whereas CFRP can reduce by 40-60%
- Excellent corrosion resistance
- Superior fatigue strength
- Styling & system cost saving

**Challenges**
- High material cost
- Lack of efficient manufacturing process

**Automotive parts fabrication process comparison**

<table>
<thead>
<tr>
<th>Process</th>
<th>Initial Cost</th>
<th>Production Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection Molding</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Blow Molding</td>
<td>H</td>
<td>L</td>
</tr>
<tr>
<td>BMC Molding</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>SMC Molding</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>GMT Stamping</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>RIM</td>
<td>L</td>
<td>M</td>
</tr>
<tr>
<td>RTM</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Thermoforming</td>
<td>L</td>
<td>M</td>
</tr>
</tbody>
</table>

H = High, M = Medium, L = Low

**Creating the Equation for Growth**
### Price Performance Comparison of Competing Materials for Automotive Applications

<table>
<thead>
<tr>
<th>Materials</th>
<th>Average amount per car (lbs)</th>
<th>Performance / Price ratio (Strength/$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>2000</td>
<td>1.1</td>
</tr>
<tr>
<td>Aluminum</td>
<td>600</td>
<td>0.2</td>
</tr>
<tr>
<td>FRP</td>
<td>77</td>
<td>0.7</td>
</tr>
<tr>
<td>Natural Fiber Composite</td>
<td>35.2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

While taking into consideration the density of steel, its relative performance compares well to composites . . . .

Source: Lucintel
### Price Performance Comparison of Competing Materials for Automotive Applications

<table>
<thead>
<tr>
<th>Materials</th>
<th>Average amount per car (lbs)</th>
<th>Performance / Price ratio (Specific strength/$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>2000</td>
<td>0.15</td>
</tr>
<tr>
<td>Aluminum</td>
<td>600</td>
<td>0.08</td>
</tr>
<tr>
<td>FRP</td>
<td>77</td>
<td>0.36</td>
</tr>
<tr>
<td>Natural Fiber Comp.</td>
<td>35.2</td>
<td>1.15</td>
</tr>
</tbody>
</table>

*.... but for equal volumes, glass fiber composites outperform steel and aluminum. Natural fiber composites have additional strong penetration potential.*

Source: Lucintel
**Thermoset and Thermoplastic Composites Market in 2010**

**Resin**
- **THERMOPLASTIC RESIN**
  - $10 Bil
  - Short Fibers
  - Continuous fiber
  - Fiber mat

**Fibers**
- **THERMOSET RESIN**
  - Partially cured resin
  - Short Fibers
  - Continuous Fiber

**Combining process**
- Extrusion & Chopping
- Pultrusion & chopping
- Impregnation
- Impregnation & Fillers

**Semi Finished product**
- Granules
  - Short fibers
  - Long fibers
  - Prepreg / GMT

**Forming process**
- Injection molding
- Compression Molding
- RRIM SRIM
- Filament Winding
- RTM
- Pultrusion/Hand layup
- Compression / Inj. Molding
- Press / Autoclave

**End Product**
- Finished components for end markets such as Automotive, Aerospace, Construction, etc. = $50.2 Billion

**Creating the Equation for Growth**
Table of Content

• Executive Summary

• Composites Competitiveness and Market Opportunity
  • Market Trends and Opportunity

• Growth Opportunities in 2011 and Beyond

• Conclusions

• About Lucintel
Creating the Equation for Growth

External Forces Shaping Composites Industry: Higher market fragmentation expected in future due to emerging economies. Companies in developed nations with innovation capability can thrive and gain share.

- Global platforms
- Technical service
- Application Dev.
- Partnership
- Value

Customers

- Specialization
- Efficiency
- Power

Suppliers

- Competition from emerging economies
- Consolidation
- Non-traditional/new entrants
- Focus/specialization

Competitors

- Regulations on (VOCs)
- Tax credits on renewables
- Uncertainty in Government programs for defense projects

Regulators

- Innovation
- Cost
- Process improvement
- Capital

Technology

- Technical Service
- Specialization
- Efficiency
- Value-added

Distributors

- Skills
- Availability
- Location
- Needs
- Culture

Destabilizers

- Global recession
- War
- Political instability
- China asset bubble

Workforce

- Global platforms
- Technical service
- Application Dev.
- Partnership
- Value

Composites Industry

- Innovation
- Cost
- Process improvement
- Capital
Creating the Equation for Growth

Regional Composites Market Trend: 2005-2010

Key Insights

• Composites industry growth outpaced GDP in 2010

• Huge fluctuations in various markets during last 5 years due to economic recession

• Composites industry performed poorly relative to GDP during the last 5 years

  • However it is forecast to grow at a higher rate than GDP over next 5 years

Source: Lucintel
Looking towards the future: the world has become an Urban World with strong growth opportunities across developing nations . . .

### Global Urban & Non-Urban Population (Millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>World Population</th>
<th>Urban Population</th>
<th>Non Urban Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>2,518</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>4,434</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>5,262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>6,070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>6,454</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>6,790</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2030</td>
<td>8,309</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Global Population by Region (Millions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oceania</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### World Population in Millions

<table>
<thead>
<tr>
<th>Year</th>
<th>World</th>
<th>Urban</th>
<th>Non Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>2,518</td>
<td>731</td>
<td>1,788</td>
</tr>
<tr>
<td>1980</td>
<td>4,434</td>
<td>1,734</td>
<td>2,701</td>
</tr>
<tr>
<td>1990</td>
<td>5,262</td>
<td>2,263</td>
<td>3,000</td>
</tr>
<tr>
<td>2000</td>
<td>6,070</td>
<td>2,835</td>
<td>3,235</td>
</tr>
<tr>
<td>2005</td>
<td>6,453</td>
<td>3,143</td>
<td>3,311</td>
</tr>
<tr>
<td>2010</td>
<td>6,791</td>
<td>3,449</td>
<td>3,341</td>
</tr>
<tr>
<td>2030</td>
<td>8,309</td>
<td>4,985</td>
<td>3,324</td>
</tr>
</tbody>
</table>

Creating the Equation for Growth
where the largest urban cities are in developing countries

<table>
<thead>
<tr>
<th>Rank</th>
<th>Largest Urban Areas 1900</th>
<th>Largest Urban Areas 1950</th>
<th>Largest Urban Areas 2000</th>
<th>Largest Urban Areas 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>London, UK</td>
<td>New York US</td>
<td>Tokyo- Yokohama, Japan</td>
<td>Tokyo- Yokohama, Japan</td>
</tr>
<tr>
<td>2</td>
<td>New York, US</td>
<td>London, UK</td>
<td>Mexico City, Mexico</td>
<td>Mumbai, India</td>
</tr>
<tr>
<td>3</td>
<td>Paris, France</td>
<td>Tokyo, Japan</td>
<td>New York, United States</td>
<td>Delhi, India</td>
</tr>
<tr>
<td>4</td>
<td>Berlin, Germany</td>
<td>Paris, France</td>
<td>São Paulo, Brazil</td>
<td>Dhaka, Bangladesh</td>
</tr>
<tr>
<td>5</td>
<td>Chicago, US</td>
<td>Shanghai, China</td>
<td>Mumbai, India</td>
<td>São Paulo, Brazil</td>
</tr>
<tr>
<td>6</td>
<td>Vienna, Austria</td>
<td>Moscow, Russia</td>
<td>Shanghai, People’s Republic of China</td>
<td>Mexico City, Mexico</td>
</tr>
<tr>
<td>7</td>
<td>Tokyo, Japan</td>
<td>Buenos Aires, Argentina</td>
<td>Kolkata, India</td>
<td>New York, United States</td>
</tr>
<tr>
<td>8</td>
<td>St. Petersburg, Russia</td>
<td>Chicago, US</td>
<td>Seoul–Incheon, South Korea</td>
<td>Kolkata, India</td>
</tr>
<tr>
<td>9</td>
<td>Manchester, UK</td>
<td>Ruhr, Germany</td>
<td>Buenos Aires, Argentina</td>
<td>Shanghai, People’s Republic of China</td>
</tr>
<tr>
<td>10</td>
<td>Philadelphia, US</td>
<td>Kolkata, India</td>
<td>Los Angeles-Long Beach-Santa Ana, USA</td>
<td>Karachi, Pakistan</td>
</tr>
</tbody>
</table>

As developing countries play a larger role in the global economy, their presence in composites manufacturing is also increasing.

Key Insights

- Developing nations (defined as BRIC) have substantially increased their participation in global economy.
- Overall, developing nations have taken a stronger role in global composites production.

Source: Lucintel
Composites consumption/potential in various countries (2010)

**BRIC Mega Trends**
- Rapid Growth
- Rapid Urbanization
- Emerging Middle Class
- Global Connectivity
- Increased OEM Production

**Potential Challenges**
- Rising Costs
- Asset Bubbles / Loose Credit
- Political Instability

**Source:** Lucintel
US wind energy market declined in 2010 with future recovery in the works

Challenges as overall wind market declined in 2010

- 3-4% drop in energy demand had a multiplier effect on new capacity projects which were 50% renewable
- Fall in natural gas prices affected wind competitiveness
- Connectivity issues impacted new projects
- Lack of robust long term federal targets for renewable energy continued to impact investor confidence and credit availability
  - State level RPS targets are main driver

Solutions

- Demand to grow with renewed economic vigor with EIA forecasting 2% CAGR over next 5 years for overall energy demand
- Forecast 7% CAGR in natural gas prices over 5 yrs
- Texas is leading way with new connectivity
- Political support for renewable energy expected to continue

Forecast of US cumulative wind capacity installation (MW) - 2011-2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Cumulative Wind Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>48,200</td>
</tr>
<tr>
<td>2016</td>
<td>102,300</td>
</tr>
</tbody>
</table>

Source: Lucintel
Why wind energy: Even in highly developed wind markets such as Germany, penetration relative to potential remains low; large markets such as USA have very low penetration levels.

Key Insights:

- Both US and China show strong potential and low current penetration.
- Russia has high potential but oil dependence points to limited wind development.
- PROFINA program is expected to drive wind power sector in Brazil targeting 5,000 MW by 2015.
- Germany, widely considered a leading economy in adopting wind energy is currently at 30% penetration.
China wind market expected to witness robust cumulative growth rate in next 5 years

Key Insights

- Wind is expected to remain dominant renewable source in next 10 years
  - Chinese government made commitment for 15% non-fossil fuel in total energy use by 2020 (currently at 8.5%)
- Expiration of Kyoto Protocol in 2012, with elimination of carbon trading mechanism, is likely to have a temporary adverse impact on China wind market in 2013 by reducing the carbon trading revenue of wind farms, reducing their IRR and impacting overall investment in wind
- China’s YoY annual installation growth rate to 2016 is relatively low due to a high base in 2010, but total installations are expected to exceed 100 GW by 2014

Forecast of China wind cumulative capacity installation (MW) 2011-2016

Source: Lucintel
Wind energy market insight: increasing blade length requires better blade design, improved materials, lower process and life cycle cost

**Current focus for Wind Blades**

- **Design:**
  - Improved Aerofoil design for better load distribution across the blade cross section area which increases reliability and performance

- **Materials:**
  - With increasing length, need for higher strength-to-weight ratio material
  - Mixture of fiber glass and carbon fiber to improve the stiffness and tensile strength in the fiber direction

- **Process:**
  - Process improvement to reduce total production time

- **Lower life cycle cost:**
  - Improving reliability
  - Reducing manufacturing cost
  - Lower operation and maintenance cost

**Design**

**Improved materials**

**Process**

**Lower life cycle cost with increased power output**

Source: Lucintel
## Table of Content

- **Executive Summary**
- **Composites Competitiveness and Market Opportunity**
- **Market Trends and Opportunity**
- **Growth Opportunities in 2011 and Beyond**
- **Conclusions**
- **About Us**
Global Composite Materials Market Growth by Segment

Key Insights

- Global composite materials industry reached $17.7B in 2010, with YOY growth of 10.3%

- Global composites end product market expected to grow @7.8% CAGR to 2016
  - Positive sign of healthy growth with gradual bounce back of automotive, construction, electronics and consumer goods markets

- Asia will drive future growth of composite materials to 2016

- Europe to see moderate growth
Relative Market Attractiveness by Region: Aerospace and Wind Energy segments show most attractive markets for growth

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>North America</th>
<th>Europe</th>
<th>Asia</th>
<th>Rest of World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Marine</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Aerospace</td>
<td>●</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Pipe &amp; tank</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Construction</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Wind</td>
<td>●</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

- Attractiveness comparison is analyzed among different market segments in the same region
- Attractiveness is analyzed by taking different parameters such as current and future market potential
Creating the Equation for Growth

Table of Content

- Executive Summary
- Composites Competitiveness and Market Opportunity
- Market Trends and Opportunity
- Growth Opportunities in 2011 and Beyond
- Conclusions
- About Us
Composites Market Potential Analysis in 2016 at Different Price Points

<table>
<thead>
<tr>
<th>Applications</th>
<th>Composites Potential in 2016</th>
<th>Composites Part Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>US$ 78 B</td>
<td>@ current price level</td>
</tr>
<tr>
<td>FRP Wind Blade</td>
<td>US $ 160 B</td>
<td>@ 0.85x current price</td>
</tr>
<tr>
<td>Auto Parts</td>
<td>US$ 230 B</td>
<td>@ 0.7x current price</td>
</tr>
<tr>
<td>FRP Door</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP Grating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP Window</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRP Utility pole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming Pool</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Creating the Equation for Growth
Conclusions

• Composites industry is sustainable with +30,000 composite applications
• Strong growth expected in the foreseeable future, led by accelerated BRIC growth
• Weight savings, fuel economy and other performance benefits will fuel the growth of composites consumption in Automotive
• High cost of materials and lack of suitable manufacturing processes for high volume automotive applications continue to be limiting factors for future growth
• New reality in various emerging countries will change geo-political and geo-economical elements of market. . . . players must react accordingly
• New business models need to be re-invented to address fast changing complex world
  – Quarterly demand for composites shipments monitored by Lucintel show significant changes (up to 40% change Quarter by Quarter) in various market segments
• Companies driven by innovation in developing nations will maintain and gain market share
• Population growth, new infrastructure projects, urbanization, increase in middle class population, green movement will drive composites growth to new horizons
• Innovations aimed at lowering cost of end products by 30% have potential to grow composites market by a factor of 3x
Creating the Equation for Growth

Table of Content

• Executive Summary
• Composites Competitiveness and Market Opportunity
• Market Trends and Opportunity
• Growth Opportunities in 2011 and Beyond
• Conclusions
• About Us
About Lucintel

- Lucintel is the **leading global management consulting & market research firm**

- Lucintel **creates your equation for growth** and is committed to **actionable results** that **deliver significant value and long term growth** to our clients.

- Lucintel has been creating measurable value for over 10 years and for thousands of clients in 70 + countries worldwide.

<table>
<thead>
<tr>
<th>Market Reports</th>
<th>Consulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace</td>
<td>Growth and Strategic Consulting</td>
</tr>
<tr>
<td>Transportation</td>
<td>Benchmarking</td>
</tr>
<tr>
<td>Marine</td>
<td>Opportunity Screening</td>
</tr>
<tr>
<td>Construction</td>
<td>Partner Search and Evaluation</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Due Diligence and M&amp;A</td>
</tr>
<tr>
<td>Recreational</td>
<td>Market Entry Strategy</td>
</tr>
<tr>
<td>Composite Materials</td>
<td></td>
</tr>
</tbody>
</table>

Lucintel Products & Services: Over 100 market reports to optimize your market research investment
Lucintel has an extensive toolkit to address key strategic questions for increasing your company’s profitability and market presence.

Key Questions

- Is market space / opportunity of current product offerings sufficiently robust?
- Markets are focus for many: how can my company profitably differentiate?
- Based on our core skills, where should we focus?
- Should we build or buy? Is build even an option?
- What game changer actions exist and/or is a more incremental approach best?
- What is the order sequence of market entry segments / products?
Clients around the world value our services.
Reach Lucintel

For your business requirements and cutting edge consulting solutions, contact Lucintel at helpdesk@Lucintel.com or Tel. +1-972-636-5056 or call one of the following.

Roy Almaguer
Sales Manager, USA
Email: roy.almaguer@lucintel.com
Tel. : +1-210-878-7693 (Office)

Alan Clark
Director of Sales, UK
Alan.clark@lucintel.com
Tel :+44 (0) 7875 708825

Nigel Odea
Business Development Manager, UK
nigel.odea@lucintel.com
Cell : +44 (0) 207 558 8798