Emerging Between the Industrial and Federal Sectors: Reflections and Recommendations

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Outline

- Objectives
- Disclaimers
- Reflections
- Recommendations
- Conclusions
Objectives

- Reflect on emergence as a materials engineering professional in between the industrial and federal sectors
- Inspire emerging materials engineering professionals to participate in these sectors
- Illustrate the need for materials engineers within industry, government, and academia sectors
- Identify specific actions for emerging materials engineering professionals
Disclaimers

- The opinions expressed herein are based on personal experiences, observations, and reflections.
- This is not an endorsement of any political party, candidate, or policy.
- This is not a call for résumés or proposals.
Careerquest?
How does one emerge in between the industrial and federal sectors?

- Start at A – High School – Board of Education
- Go to B – College and Air Force ROTC
- Go to C – Air Force Materials Laboratory
- Go to D – Air Force Ballistic Missile Office
- Go to E – Southern Terminus of the Appalachian Trail
- Go to F – Northern Terminus of the Appalachian Trail*
- Go to G – DOD Contractor
- Go to H – Industrial Manufacturer
- Go to I – ATI – Collaboration Leader
- Stop at ?

Common features of these stops
  ◦ Constant interaction with the federal sector
  ◦ Professional and personal interests
  ◦ ASM International networking
  ◦ ASM International Federal Affairs Committee
Materials Engineers and Policy

- Opportunities abound
- Legislative Branch
  - Making of policy
  - Creation of laws
- Executive Branch
  - Making of policy
  - Approving or vetoing laws
  - Program execution within the Agencies
    - DOD, DOE, DOC, etc
  - Regulation
    - EPA, NRC, etc
- Judicial Branch
  - Not touched upon during this presentation, but assume there is plenty of room for materials engineering
Where do Materials Engineers participate in this process? Replace “Immigrant” with favorite materials related bill!
“Because that’s where the money is.”
– Willy Sutton
## Interception Matrix

<table>
<thead>
<tr>
<th>Materials</th>
<th>Legislation &amp; Regulations</th>
<th>Solutions</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare Earths</td>
<td>Series of proposed bills</td>
<td>DOE Alternatives TBD - New Programs</td>
<td>Research Manufacturing Policy</td>
</tr>
<tr>
<td>Body &amp; Vehicle Armor Armor</td>
<td>Defense Appropriations Bill</td>
<td>Competitive Contracts</td>
<td>Legislation Research Manufacturing</td>
</tr>
<tr>
<td>Aluminum, Steel, Magnesium, Composites</td>
<td>CAFÉ Standards</td>
<td>Reduced weight, reduced cost, improved designs</td>
<td>Policy Research Manufacturing</td>
</tr>
</tbody>
</table>


Federal, State, and local governments employed about 12 percent of engineers in 2008. About 6 percent were in the Federal Government, mainly in the U.S. – DOD, DOT, DOE, DOI, and Energy, and in the NASA. Many engineers in State and local government agencies worked in highway and public works departments.
Hang out on K Street

- Consider becoming a lobbyist!
- Special interest groups
- Lobbying firms
- All need expertise
- Do something old, thumb through the white pages of the DC phone book, if you can find one
- Do something “new”, browse the web for your favorite material

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Lobbying Spending</th>
<th>Number of Lobbyists*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$1.44B</td>
<td>10,405</td>
</tr>
<tr>
<td>2009</td>
<td>$3.49B</td>
<td>13,705</td>
</tr>
<tr>
<td>2010</td>
<td>$3.51B</td>
<td>12,964</td>
</tr>
<tr>
<td>2011</td>
<td>$1.67B</td>
<td>11,674</td>
</tr>
</tbody>
</table>

http://www.opensecrets.org/lobby/index.php

* The number of unique, registered lobbyists who have actively lobbied.
Starting from the ground up, materials – "minerals" – make a difference!

National Mining Association

Minerals play an invaluable role in enhancing our quality of life.

SPEAK OUT TODAY
The House Natural Resources Committee has unanimously passed critical minerals legislation. We need your help to get it passed through the full House and the Senate. Show your support today!
Join the fray

- Joint ASM/TMS Government Affairs Committee
- Congressional Visit Days to communicate with your leaders
  - Visit your Representatives and Senators on the Hill
  - Coordinate site visits by political leaders to your organization
- Visit Agencies to see what they do or be hired or be contracted
  - Department of Defense – Office of the Secretary of Defense down to the military services
  - Department of Energy – HQ and Laboratories
  - Department of Commerce – NIST
  - Department of Transportation – Laboratories
- Apply for Fellowships to broaden your career
  - White House Fellowship
  - Congressional Fellowship
- Become a Lobbyist to represent a segment of the marketplace on various issues
- Run for Office
Recommendations

- Plan with the end in mind – Point N
  - Where do you want to be? Point N
  - Which stops can or could you make from Point 0 to Point N?
  - When do you want to be there?
  - Who will be going with you? – Solo or not solo?

- Draw your map from Point 0 to Point N
  - Write down a firm but flexible plan
  - Create SMART objectives and goals
    - Specific
    - Measurable
    - Attainable
    - Realistic
    - Timely
  - Integrate and Implement a Plan – Do – Check – Act Cycle
  - Implement Daily but on a Weekly Basis while checking regularly
  - Cut and paste pictures of your goals – mirror, office, notebook
  - Consider a support team
Did we attain the presentation objectives?

- Reflect on emergence as a materials engineering professional in between the industrial and federal sectors
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Phase Transformation of 2,132 Miles

Spring Mountain, GA

Mount Katahdin, ME