

# AIChE<sup>®</sup>



## What Are Chemical Engineers doing About Energy? “Energy Steward” – AICHE Energy Survey Results

Bond Calloway, Vice Chair  
Research & New Technology Committee  
CTOC/NED Past Chair  
Savannah River National Laboratory

# 1<sup>st</sup> Gulf War-Example 1991 – How Quickly did this Picture Fade from our Minds?

- The U.S. imports more than 50 % of its crude oil and is expected to import more than 60% by 2010.
- U.S. Consumers pay foreign countries over two billion dollars a week to satisfy the demand for imported oil
- Much of our oil is imported from politically unstable areas of the world.

Photo: Oil fires in Kuwait following Desert Storm

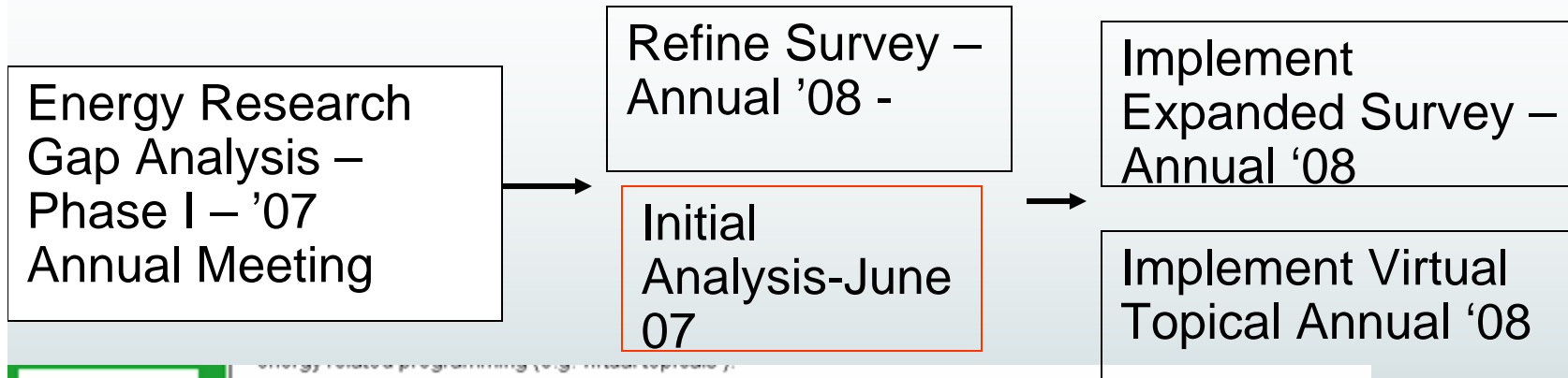
# RANTC Energy Steward Concept

- “Energy Steward” is a Fair & Foul Weather Promoter of Energy Initiatives within the Institute – Waves Energy Flag When Prices Are High or Low
- Promotes AICHE Missions/Objectives through *Additional & More Unified Energy Programming*
- *Facilitates Partnerships Among Divisions within AICHE who Are Interest in Energy Programming*
- Advertises & Seeks to Unite Divisions Through Publication of Energy Information
- Current Focus
  - Energy Survey-Gaps Analysis – Phase I
  - Collect Programming Content for Web
  - Virtual Topical



Hugh Roy Cullen – Discovered “Tom O’Conner” Field in South Texas in 1932

# Energy Steward – Energy Survey



**AIChE**  
Abstract Control Panel

ID: 84619  
Password: 724532

6 Steps to submit an abstract:

1. **Select Topic**
2. Title
3. Author
4. Abstract Text
5. Energy Research Analysis
6. Confirmation

Options:  
[View Submission](#)  
[Withdraw](#)

Submit another abstract:  
[Same Group](#)

Help:  
[Instructions](#)  
[Troubleshooting](#)  
[Report a Technical Problem](#)  
[User FAQ](#)

Directions: Question 1 below is required for ALL submissions. Questions 2 and 3 can only be filled out if you answer "Yes" to question 1, but they are never required.

1) Is your paper related to existing technology or advanced technology associated with the overall use and supply of energy or global climate change research? (e.g. enhanced production/ utilization of fossil, renewable or nuclear; energy efficiency, refinement into feed stocks or products; green house gas sequestration, capture or monitoring)  
 Yes  No

2) Is your paper related to fossil, renewable or nuclear energy?  
Check one, if other provide keyword (e.g. solar/nuclear)  
 Fossil  
 Renewable  
 Nuclear  
 Other: \_\_\_\_\_

3) Is your paper related to Global Climate Change?  
Check those that apply.  
 Carbon Sequestration  
 Carbon Capture  
 Carbon Monitoring/Modal  
 Other Greenhouse Gas Emissions  
 Other: \_\_\_\_\_

Submit

Initial Energy Survey – Broaden Survey Questions for Spring 08(Annual 07) to Better Understand Programming Content

# AICHE Energy Survey Overview -

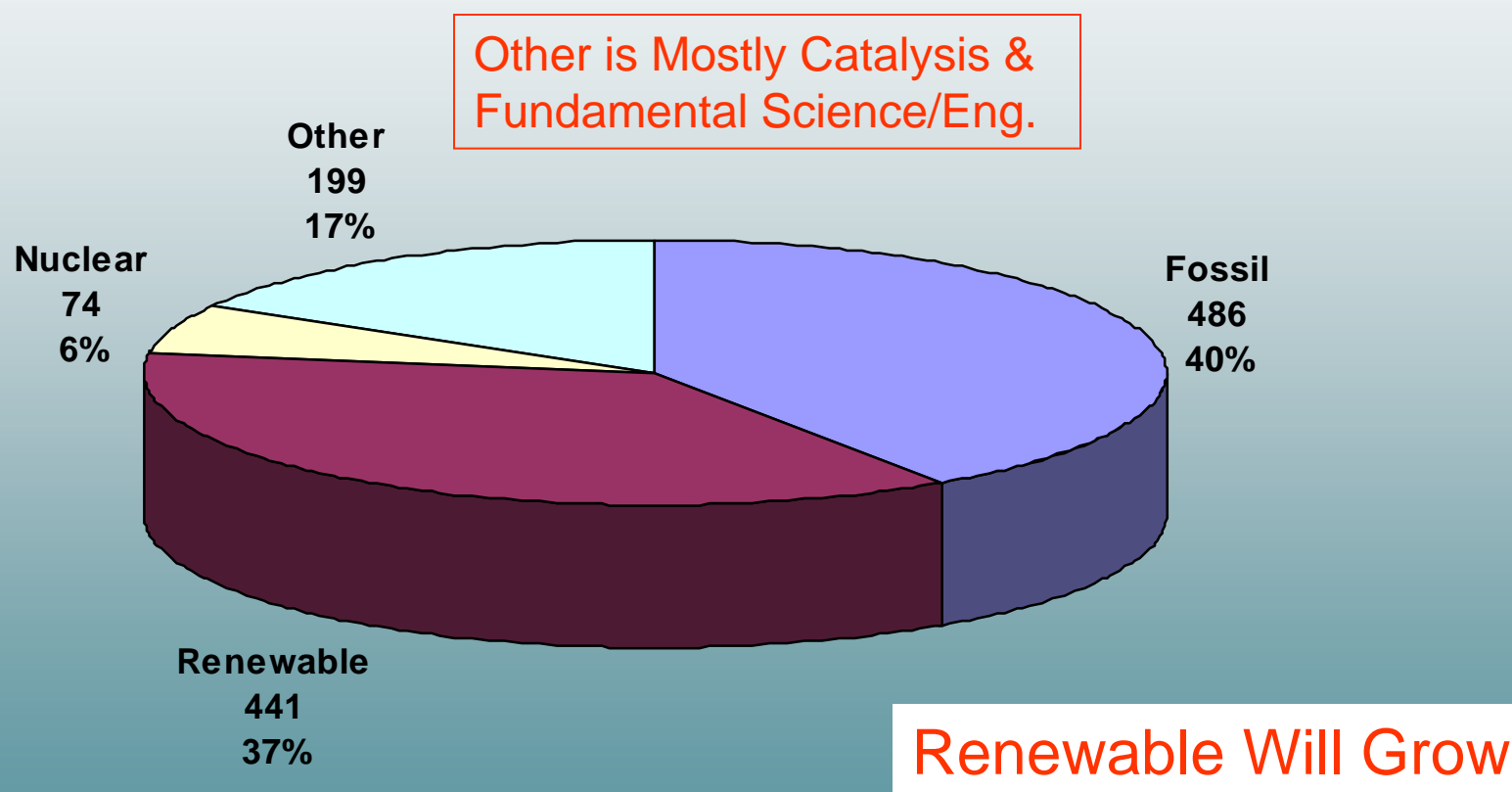
Energy Papers Are  
a Huge AICHE  
Resource

*Energy  
Related  
Papers, 1200,  
26%*

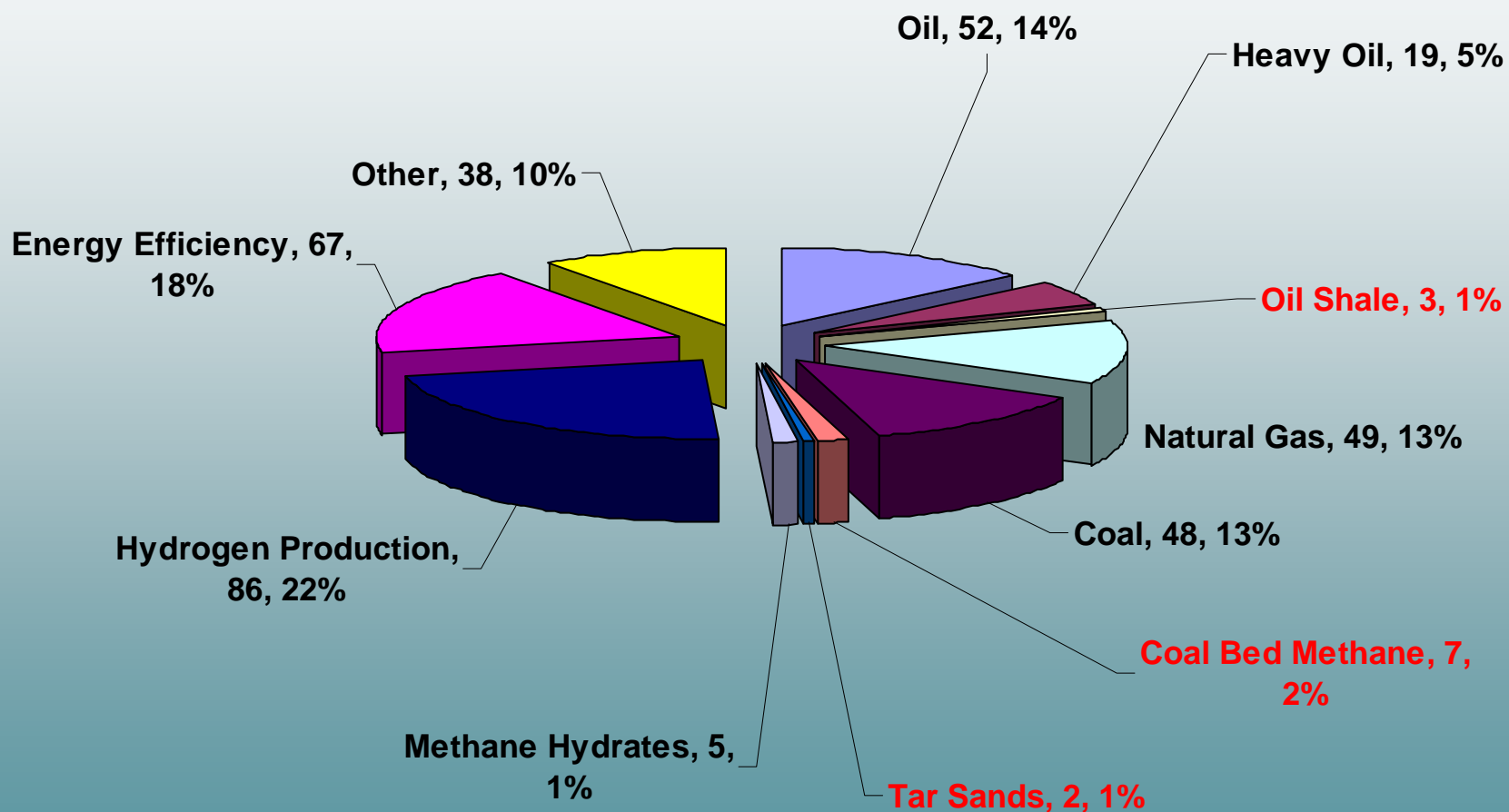
Other Papers, 3343,  
74%

Total Papers = 4543

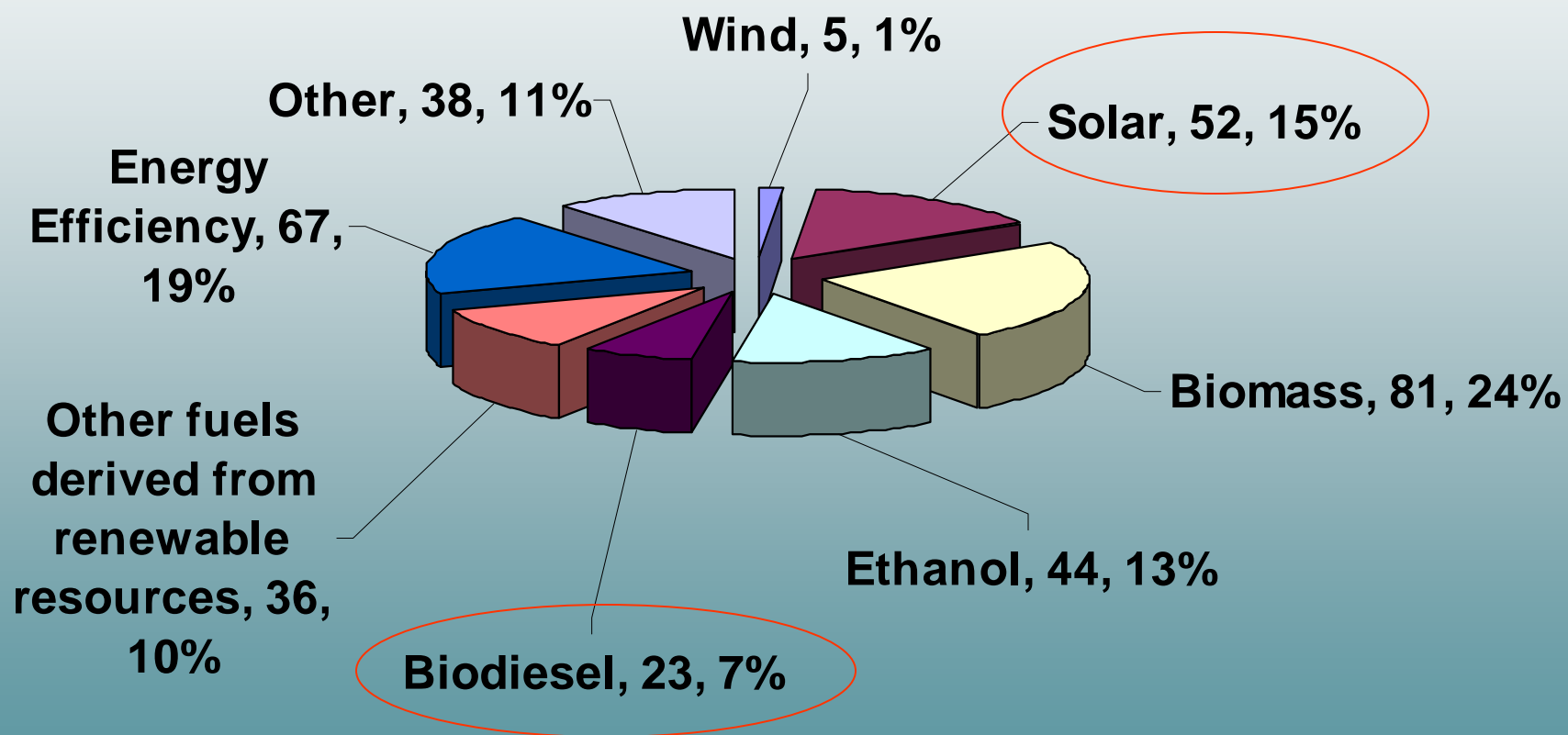
# AICHE Energy Programming By Source



# AICHE Fossil Energy Programming by Fuel Source

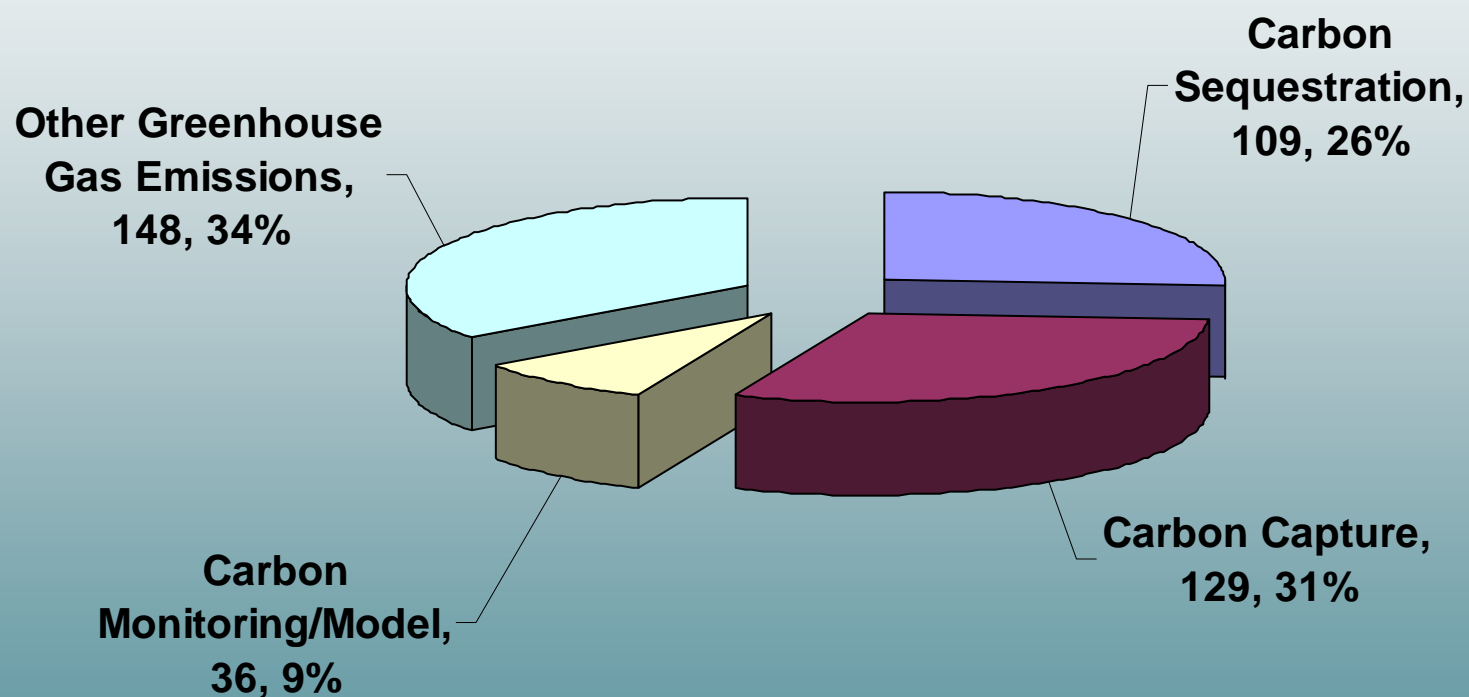


# AICHE Renewable Energy Programming by Fuel Source



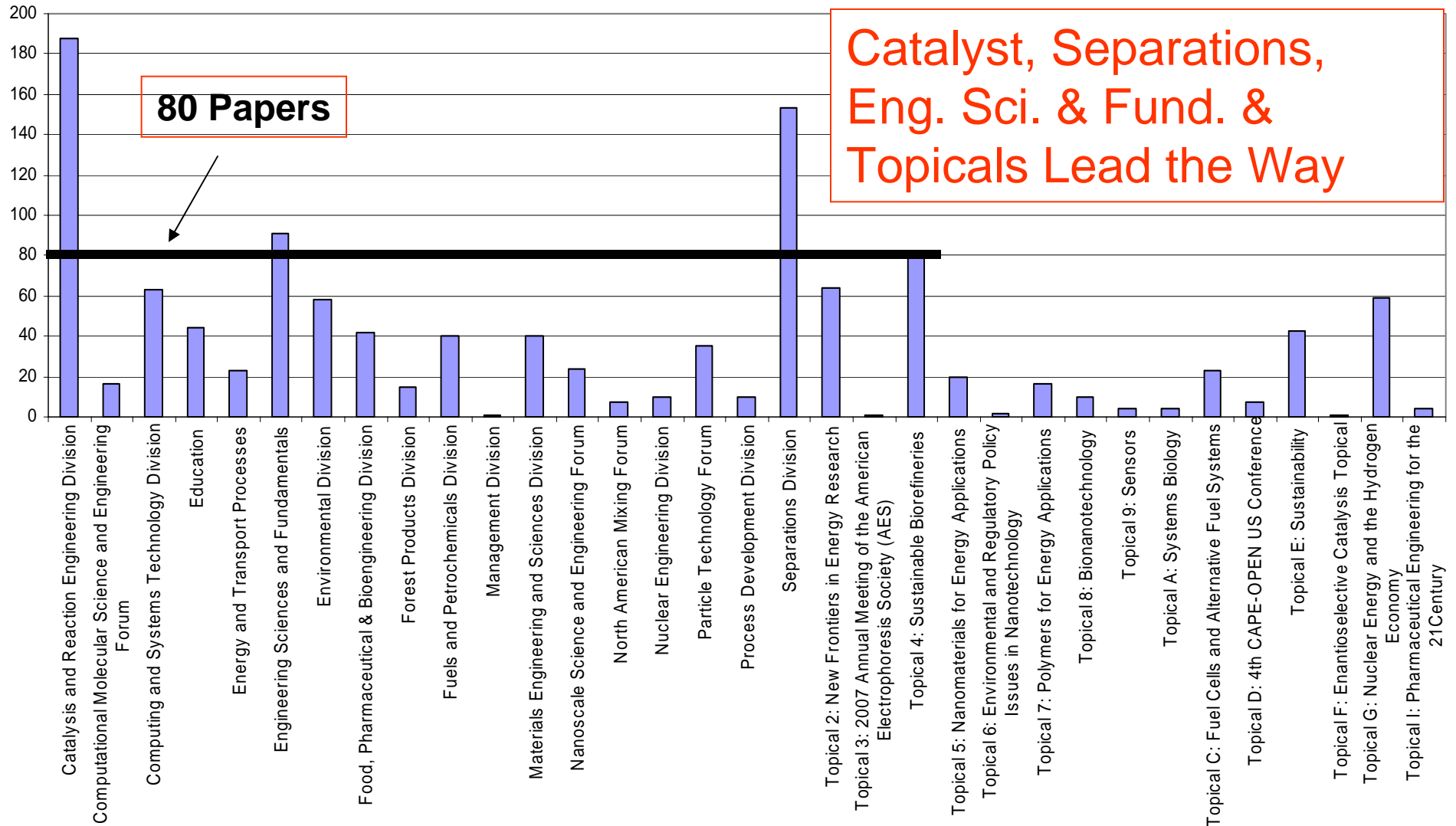


# AICHE Climate Change Programming



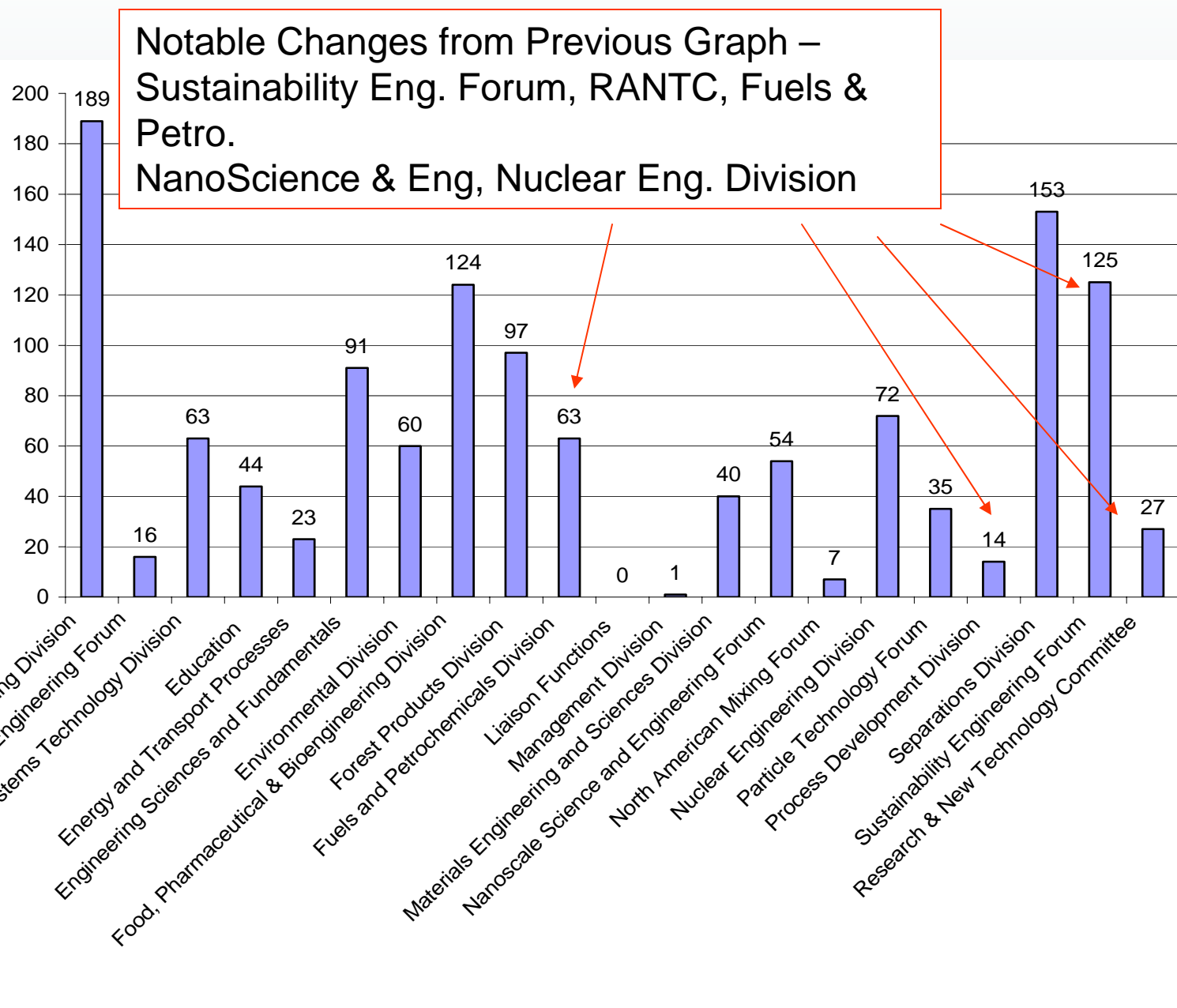
*Caution: Survey May Have Counted Sequestration & Capture Twice – Will Investigate Further*

# Energy Programming by Division/Topicals

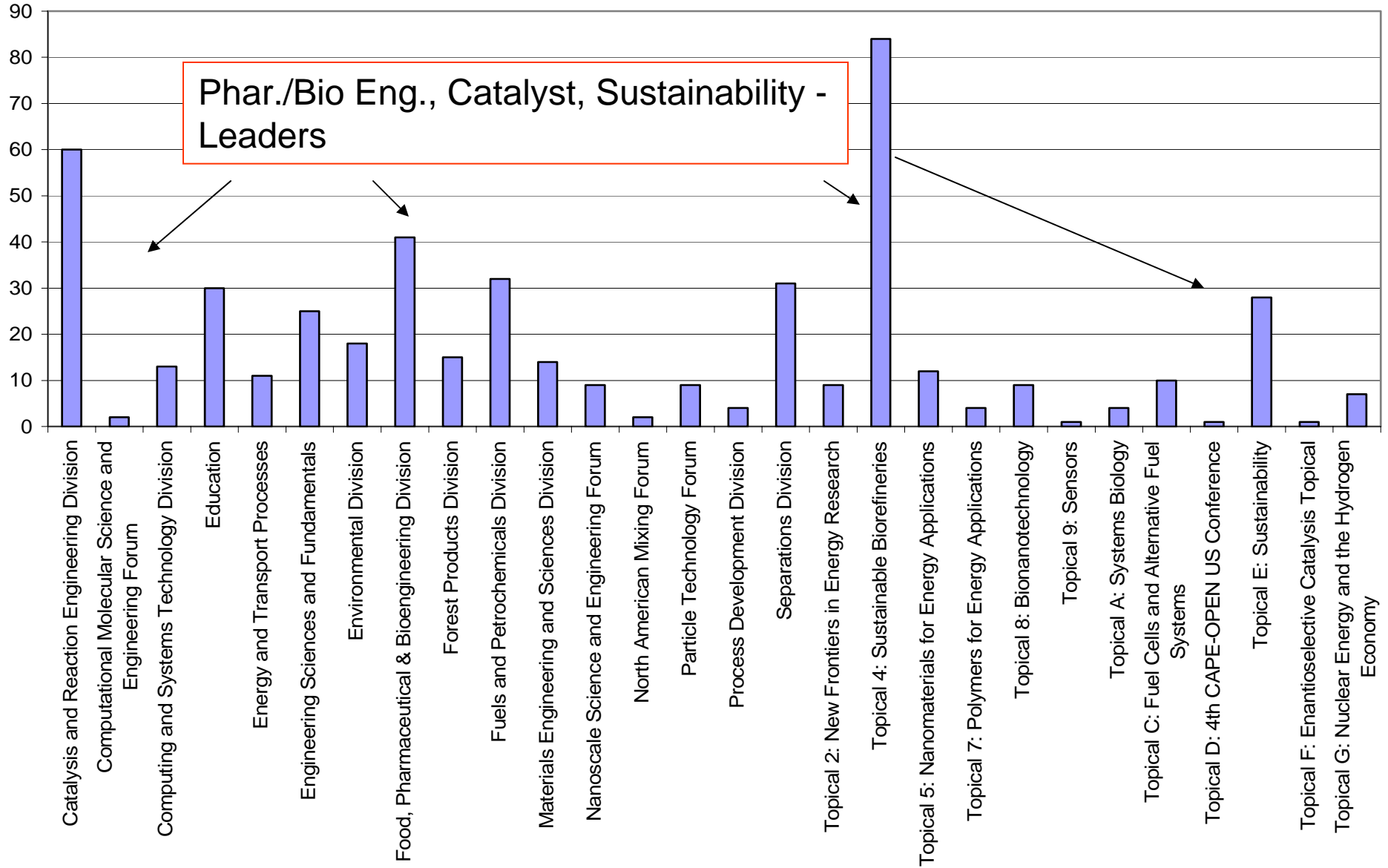


# Energy Programming by Division

- Credit for Topicals Based Upon Confex & AIChE Staff Input



# Renewable By Division/Topical

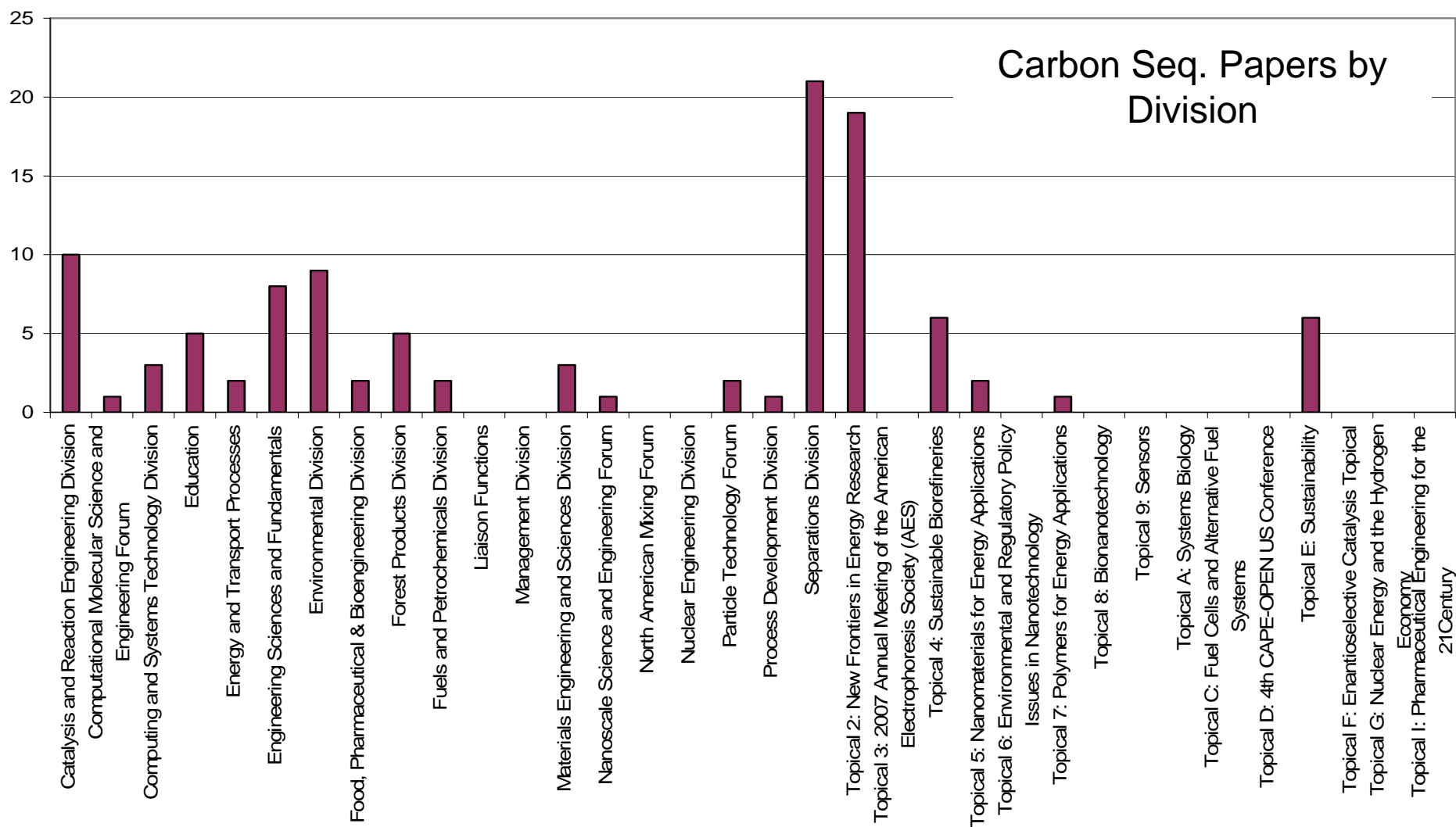


# Unconventional Oil – Big Potential for Programming Growth

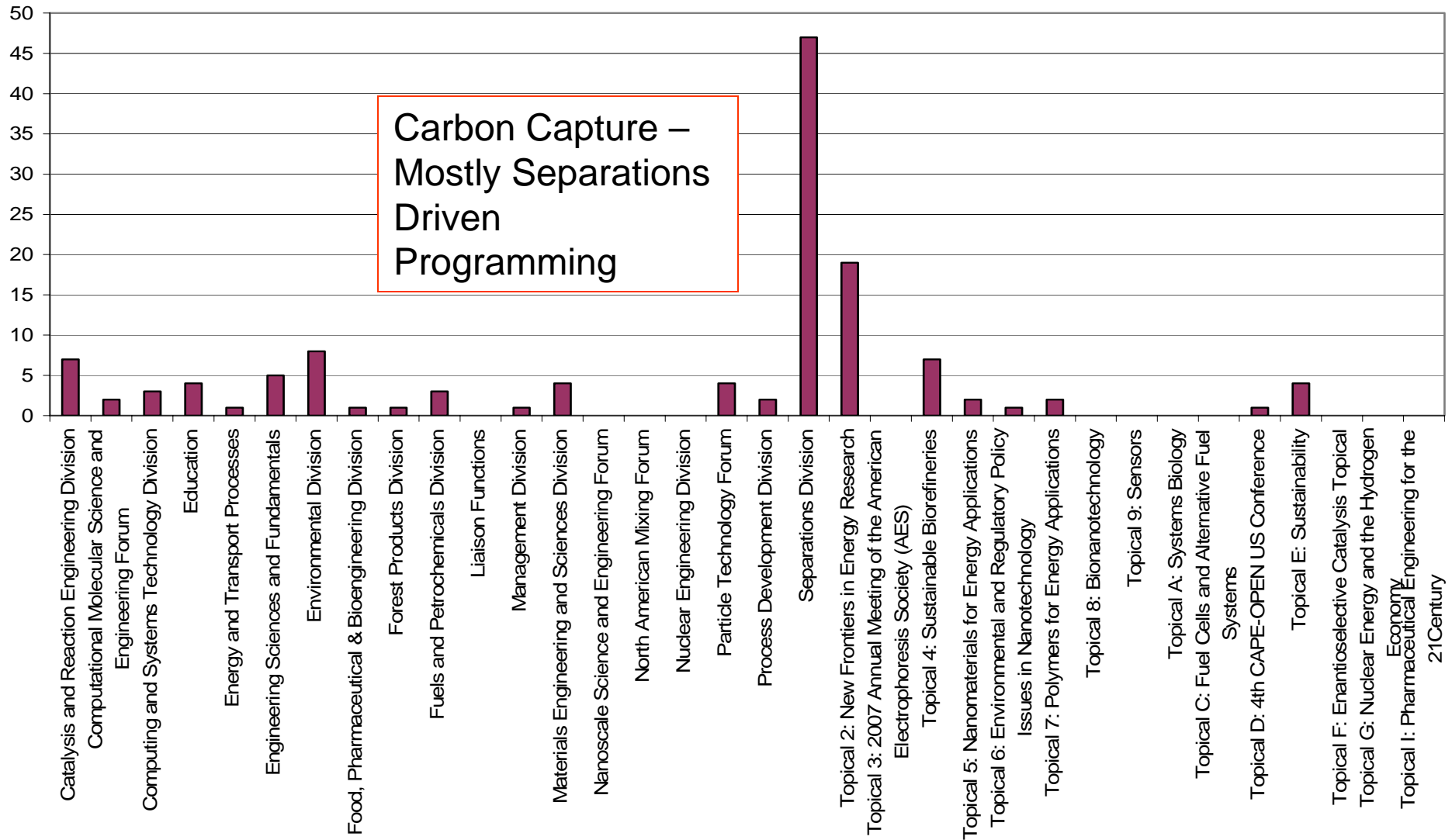
*Few Papers Presented – Need to Find a Champion on this Topic – Similar Results for Oil Sands/Methane Hydrates/Coal Bed Methane – Heavy Oil is somewhat larger but all could grow*

	Oil Shale	
Division	1	Grand Total
Education	1	1
Separations Division	1	1
Topical 2: New Frontiers in Energy Research	1	1
Grand Total	3	3

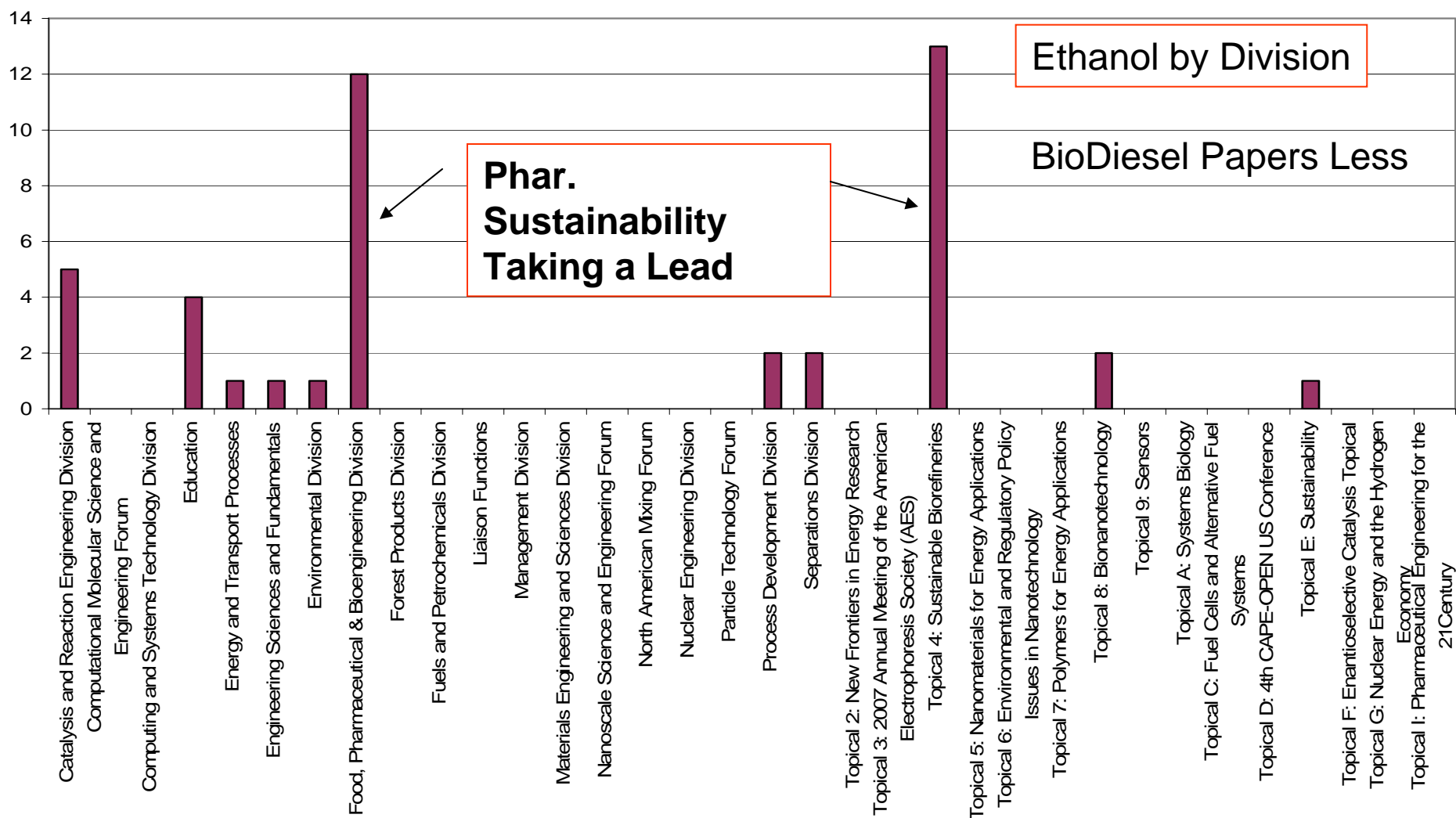
# Carbon Sequestration – Another Growth Area for AIChE



# Carbon Capture-Separations Has Clear Leadership- Could We broaden the Programming or Will It broaden Naturally?



# Ethanol, BioDiesel Not as Widely Programmed as Originally Thought



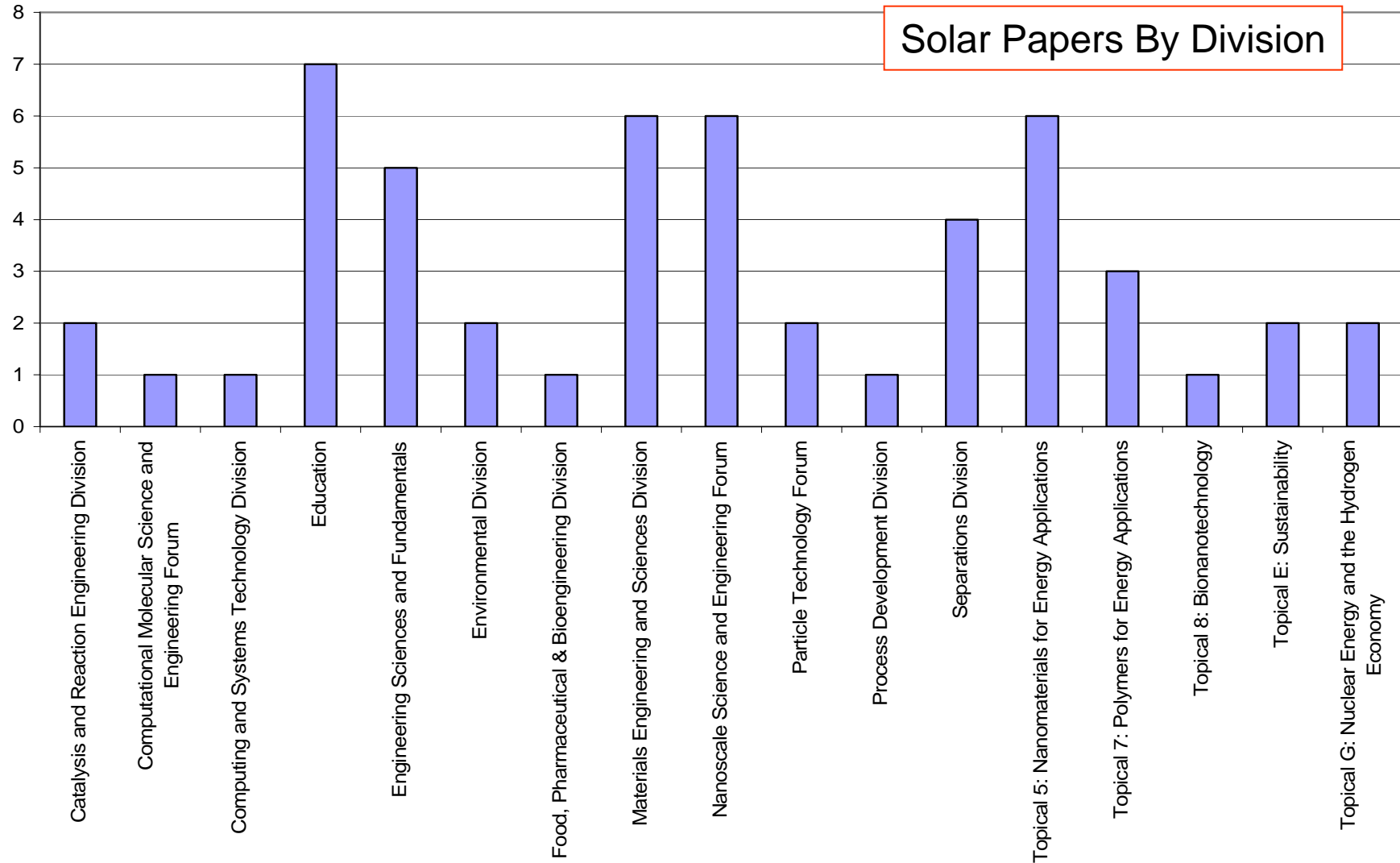


# Other Fuels/Chemicals from Renewable Sources

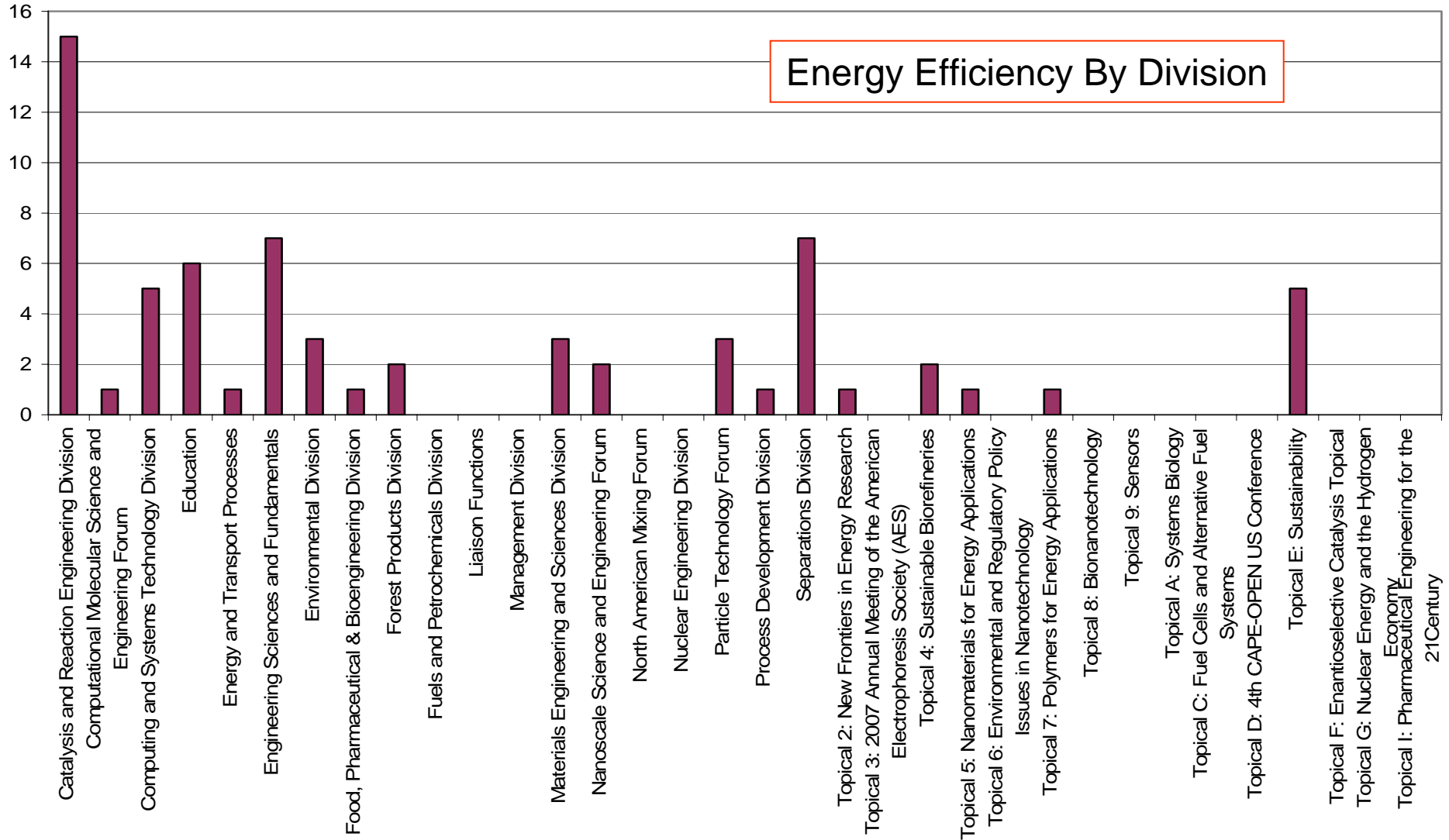
## – Ripe Area for Programming Champion

Sum of Other fuels derived from renewable resources	Other fuels derived from renewable resources
Division	1
Catalysis and Reaction Engineering Division	11
Computing and Systems Technology Division	2
Education	3
Energy and Transport Processes	2
Engineering Sciences and Fundamentals	2
Environmental Division	2
Food, Pharmaceutical & Bioengineering Division	2
Fuels and Petrochemicals Division	1
Process Development Division	1
Separations Division	1
Topical 4: Sustainable Biorefineries	5
Topical 5: Nanomaterials for Energy Applications	1
Topical 7: Polymers for Energy Applications	1
Topical C: Fuel Cells and Alternative Fuel Systems	1
Topical E: Sustainability	1
Grand Total	36

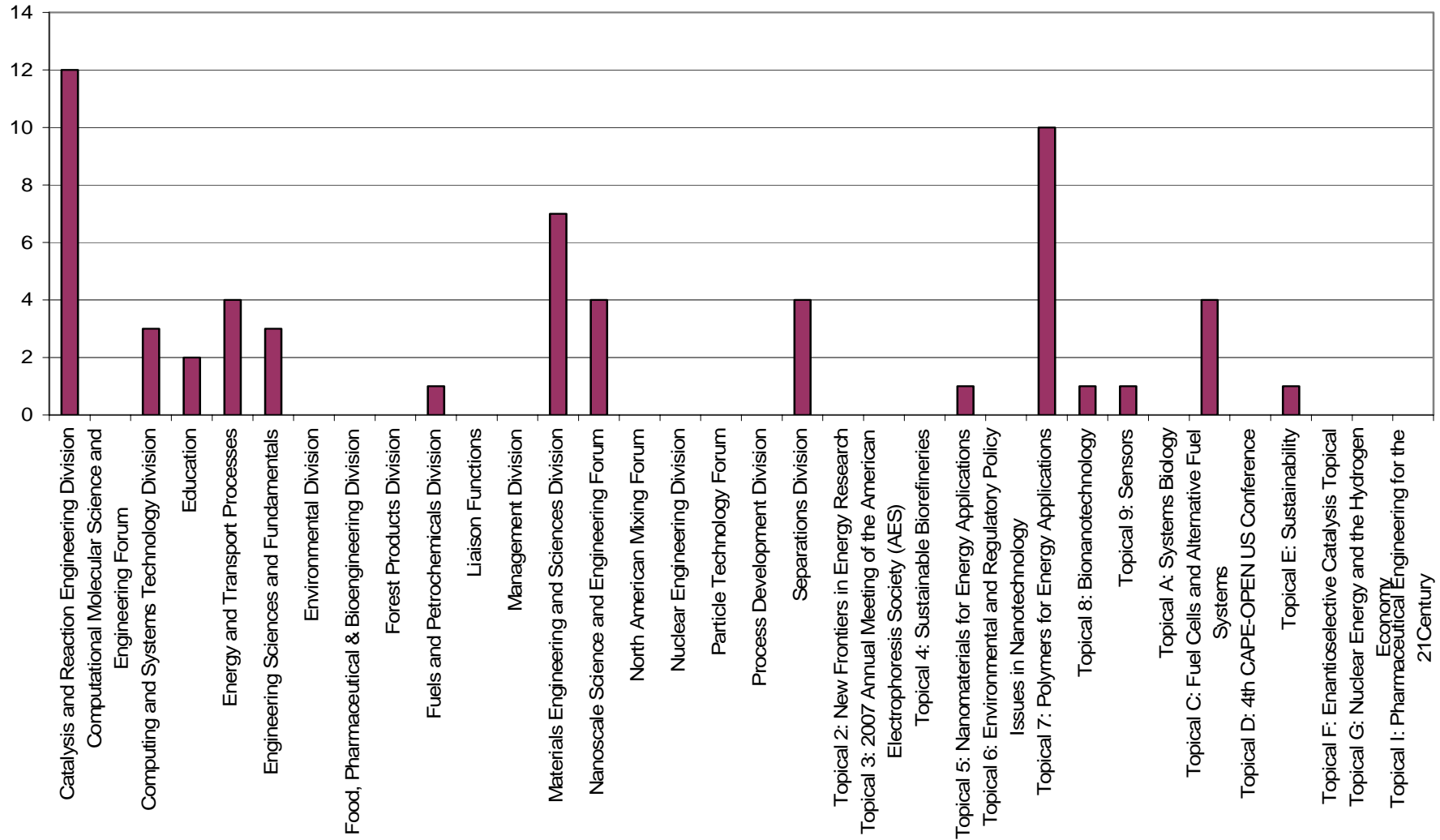
# Should AIChE Have A Solar Topical?



# Energy Efficiency – Another Potential Area for a Focused Topical?



# Are Fuel Cells Losing Momentum? – Change Survey to Highlight



# Future Plans

- Consider Article in CEP – More Data than Can be Presented Here
- Email Distribution Lists – Focus on Weaker Programming Areas
  - Unconventional Oil?
  - Solar?
  - Biofuels – Coordinate with Existing Topicals?
- Update Survey to Reflect Lessons Learned During Analysis-Annual 08
- Implement Virtual Topicals for Carbon Topics
- Capture Energy Presentations
- Coordinate with Existing AIChE Energy Task Team

Comments?

# Comments & Opening For Working Session I

- Working Session I – Should AIChE Consider a Institutionalizing Energy? Perhaps as a technical Society or Should AIChE Energy Programming continue as is or some hybrid structure; Should RANTC continue to play a role in highlighting Energy programming? Or should this role be incorporated into existing efforts?
- Group 1 - Should AIChE Consider a Institutionalizing Energy?
- Group 2 - Should AIChE Energy Programming continue as is or some hybrid structure
- Both Groups: Should RANTC continue to play a role in highlighting Energy programming? Or should this role be incorporated into existing efforts?
- Expected Output: Pro/Cons of Each Group Forwarded to AIChE Energy Task Team

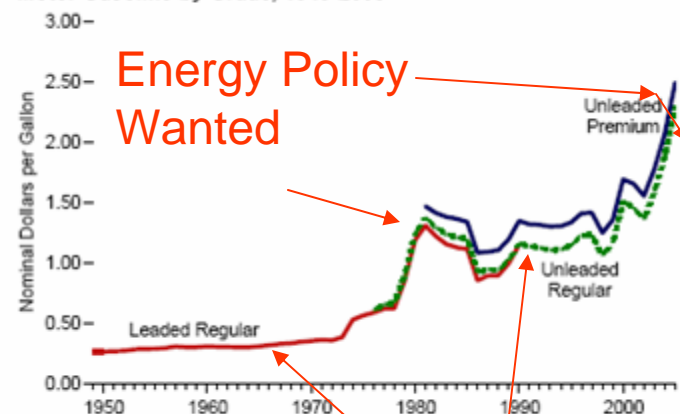
# Working Session II

- What Should AIChE RANTC's New Technology Focus be for 2008/2009
- Working Group I – List New Technology Topics and Two Champions for RANTC to Pursue
- Working Group II – Define RANTC's Future Objectives for 2008/09?

# Energy Policy is Set in Time of Need-Not Before Needed

- Gasoline Prices Trend

Motor Gasoline by Grade, 1949-2005



Energy Policy Needed

Gasoline Prices Change Very Fast – Interest in Energy Declines When Price is Low



# “Energy Steward” - Promotes AICHE Missions/Objectives

## How the “Energy Steward” Concept Maps to AICHE Goals

- the **Global Leader** of the chemical Engineering profession,
- the **Lifetime Center** for professional & personal growth, and security of chemical engineers,
- the **Foremost Catalyst** in applying chemical engineering expertise in meeting societal needs.

### Short List of Mission Statements

- **advance the development and exchange of knowledge**
- **stimulate collaborative efforts among industry, universities, government, and professional societies**
- **encourage other engineering and scientific professionals to participate in AIChE activities;**
- **advocate public policy that embraces sound technical and economic information and that represents the interest of chemical engineers**
- **facilitate public understanding of technical issues**

**Energy Covers All Aspects of AICHE Vision/Mission – But Volunteers Are Limited – Where Should we Focus Our Energies?**

# Additional & More Unified Energy Programming

- Highlight Energy Related Programming by All Divisions in Meeting Publications
- Coordinate Virtual Topical (e.g. Hydrogen, Coal covered by so Many Divisions- Single Topical Difficult) – *Need to Advertise All*
- Could Setup Confex to Sort Papers by Subject Area (e.g. Energy, Hydrogen, Energy Efficiency, Oil, Gas, Coal, Renewable).
- Programs Could (*Will*) be Printed Highlighting (Consider Color Highlighting) Subjects Areas in Energy

## **Facilitates Partnerships Amongst Divisions/Forums within AIChE who Are Interest in Energy Programming**

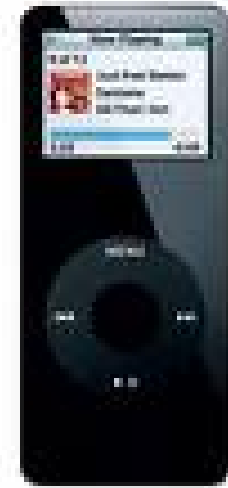
- Advertises Divisions/Forums Energy Related Sessions to Others –
- Keyword System in Confex Could help Identify Relevant and Related Sessions

# Advertises & Seeks to Unite Divisions Through Publication of Energy Information

- Energy Related Papers Could be Identified by Keyword and Could be Sorted and Search for Easy Access
- Is AIChE Missing Publication Opportunity?
- Hundreds of Presentations on Hydrogen Alone were Presented at Last Annual Meeting
- Each Presentation Could be Captured by Keyword – Energy Related Papers could be sold as a group or single by downloading – Shouldn't we consider the IPOD Publication Model? – *Pay by the Song?*
- Ex. NED Captures and Posts all Presentations for Free – Web Site is becoming a resource for our industry

# Further Initiatives

- Implement ***Capturing Presentations from Conference and Storing on Web*** – Make Energy Content Available to Members
- Continue to ***Refine Energy Survey/Virtual Topical Concept*** to Suit Members Needs
- New Item: Joined Energy Leadership Task Force Team – Task Team Member for National Programming Team
  - Develop ***Partnering Arrangements with other Energy Conferences***



***IPOD Model*** – Buy Only Content that You Desire- Electronic PowerPoint Files Represent a Huge Resource of Information for Our Members

*Continue to Work with Institute's Energy Task Force to Highlight and Promote Energy Related Programming*

# National Meeting Programming- AIChE Energy Team

Leadership Team (Karen Person Staff Support)	Task Team Participants	Operating Council Liaison	AIChE Staff
Andre Da Costa* Liese Dalbauman	Martin Abraham Bond Calloway	Jim Hill (CTOC)	Joe Cramer

# National Meeting Programming

## AICHE Energy Team

- Partnership with RANTC Energy Steward Initiative
- Objectives
  - Focus energy programming to be more effective
  - Facilitate partnerships among Divisions and Groups on energy; unite segmented activities
  - Enhance advertising, publicity, and participation (gatherings, virtual meetings, web communications)
- Actions
  - Energy survey / gaps analysis (Annual 07)
  - Collect programming content for web site
  - Virtual topical (Annual 08)
  - Establish web access to presentations (“IPOD model”)
  - Partner with other energy conferences

# Further Discussion

- What else could we be doing to Highlight Energy Topics?