



**Introduction: International Emerging  
Markets for Coal Mine Methane Projects:  
Commercializing Advanced Technologies in Developing  
Countries and Economies in Transition**

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**Coalbed Methane Programs**

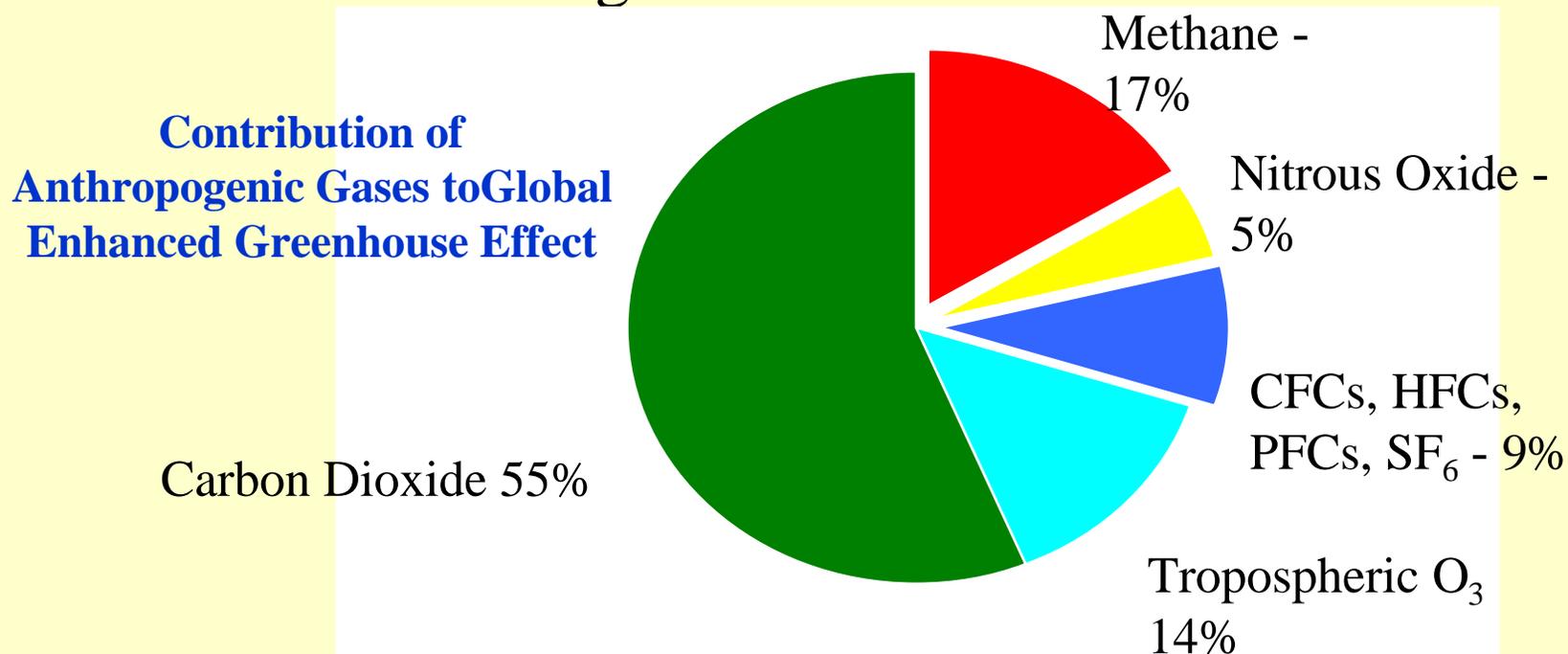
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# Purposes of Workshop:

- To Better Understand the Potential for Coal Mine Methane in Developing Countries and Economies in Transition
- To Examine, Via Case Studies, the Challenges to Commercial Projects
- To Consider Approaches Toward Overcoming Challenges
- To Meet Potential Partners in Market and Project Development

# Why EPA is Interested: Methane is a Potent Greenhouse Gas

- 21 Times More Potent Than Carbon Dioxide
- 2nd Only to Carbon Dioxide as a Contributor to Global Warming



Source: IPCC, 1996.

**Total = 2.85 Watts/m<sup>2</sup>**

# Tremendous Potential for CMM Emission Reduction

- One CMM Project At One Mine May:
  - Reduce emissions by > 500,000 tons/year CO<sub>2</sub> equivalent
  - This equals > 100,000 cars off the road
- Significant Global Potential:
  - Total global emissions: 475 - 750 million tons CO<sub>2</sub> Equivalent/Year
  - Short-term reductions: 85 - 150 million tons/year
  - Longer-term reductions: 150 - 250 million tons/year

# Profitable Projects Abound

- CMM Technologies Established
- Degasification Costs Justified For Mine Safety/Coal Production; Project Costs Start at Wellhead
- \$ Billions in Profitable Projects Exist Worldwide



# EPA Activities to Promote CMM Projects



## EPA U.S. Program: Coalbed Methane Outreach Program

- Voluntary Partnerships with U.S. Coal Industry to Identify and Promote Profitable Projects
- Work Mine-by-Mine to Help Identify Project Opportunities
- 3 x Increase in CMM Projects Since Program Baseline
- Current Focus on Flaring and Ventilation Air Methane



# EPA's International Activities:

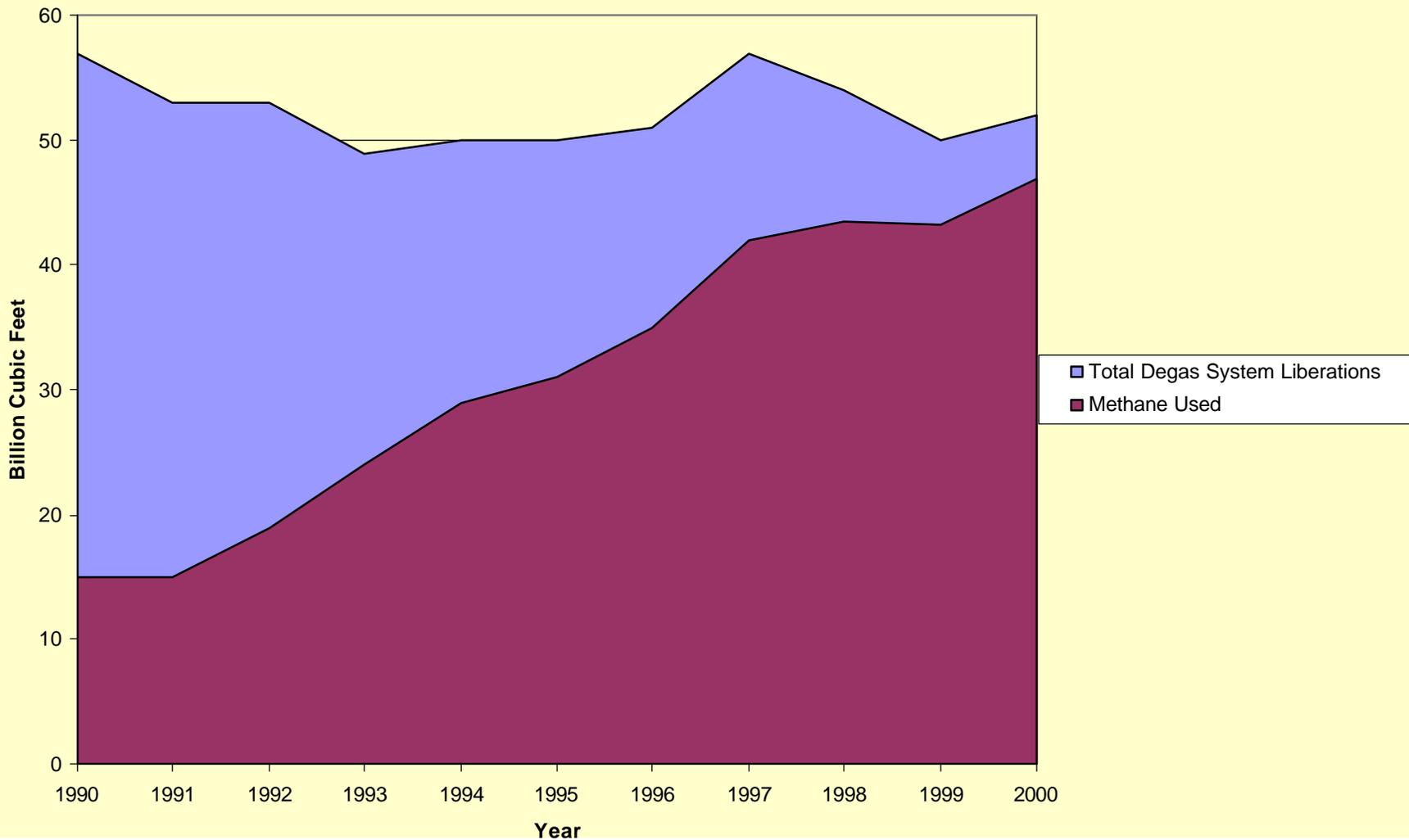
In Developing Countries and Economies in Transition:

- Identify and Leverage Demonstration Projects
- Develop Information Centers with Host Country Officials (China, Russia, Poland, Ukraine)
- Provide Policy Guidance
- Promote Western Investment



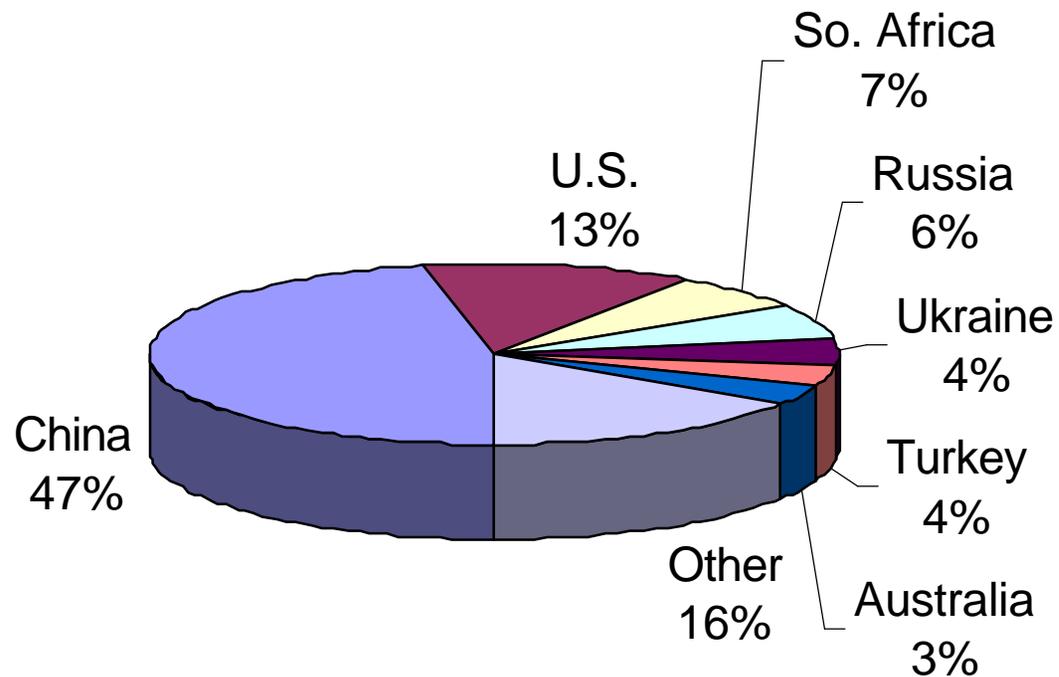
# U.S. Experience Positive:

Since 1990, 3x Increase In Gas Used, Avoided Emissions



# Global CMM Emissions

## Methane Emissions from Coal Mines 40.4 Bm<sup>3</sup>/yr



# Significant Progress Made in Many Other Countries

- China:  $\pm$  Current CMM Use  $>4x$  1989 Figure
- Poland:  $\pm$  80% of Drained Gas Used
- India:  $\pm$  Demonstration Project, Licensing Underway
- Former Soviet Union:  $\pm$  Heightened Governmental Attention
- Elsewhere:  $\pm$  Widespread Recognition of Potential

# Some Challenges

- U***Inadequate Infrastructure*
- U***Scarcity of In-Country Capital*
- U***Lack of In-Country Supplies*
- U***Limited Access to Information on Technologies*
- U***Differences in Legal and Regulatory Structures*
- U***Political Risks*
- U***Cultural/Communications Challenges*
- U***Others?*

# How Do We Find Solutions?

- Listen to Experiences of Others
- Compare to Our Own Experiences
- Consider Approaches that have Worked
- Evaluate Potential for Approaches to Work Elsewhere
- Discuss and Partner with Others for Mutual Benefit
- How May EPA Help?

# Workshop Agenda

- 8:00 - 8:30 Introduction and Overview of the Workshop  
Karl Schultz, U.S. EPA
- 8:30 - 9:15 Learning from Past Experiences in Ukraine  
Jeff Schwoebel, Resource Enterprises, Inc.
- 9:15 - 10:00 Coalbed Methane In Kazakhstan: Investment Opportunities  
Serguei Stoupak, Azimut Energy Services and Valeriy Zhukovskiy, Ministry of Energy & Mineral Resources, Republic of Kazakhstan
- 10:00 - 10:15 Break
- 10:15 - 11:00 Ventilation Air Methane: Strategies to Deploy Flow Reversal Reaction Technologies  
MEGTEC or CANMET
- 11:00 - 11:45 Russia's Kuzbass Basin and Commercialization of Advanced Technologies  
Oleg Tailakov, Russia CBM Center
- 11:45 - Noon Summary and Wrap-up  
Karl Schultz, U.S. EPA



## Contact CMOP

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