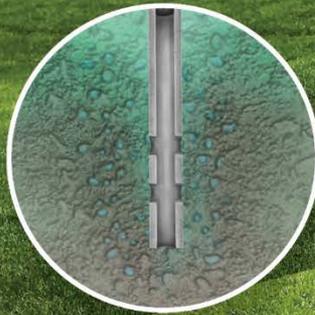


Presentation Skills

(Useful tips)



Professor John Kaldi
Chief Scientist, CO2CRC
Australian School of Petroleum,
University of Adelaide, Australia

Presentations: A Necessity of Professional Life



Key Points

(for individual or group presenters):

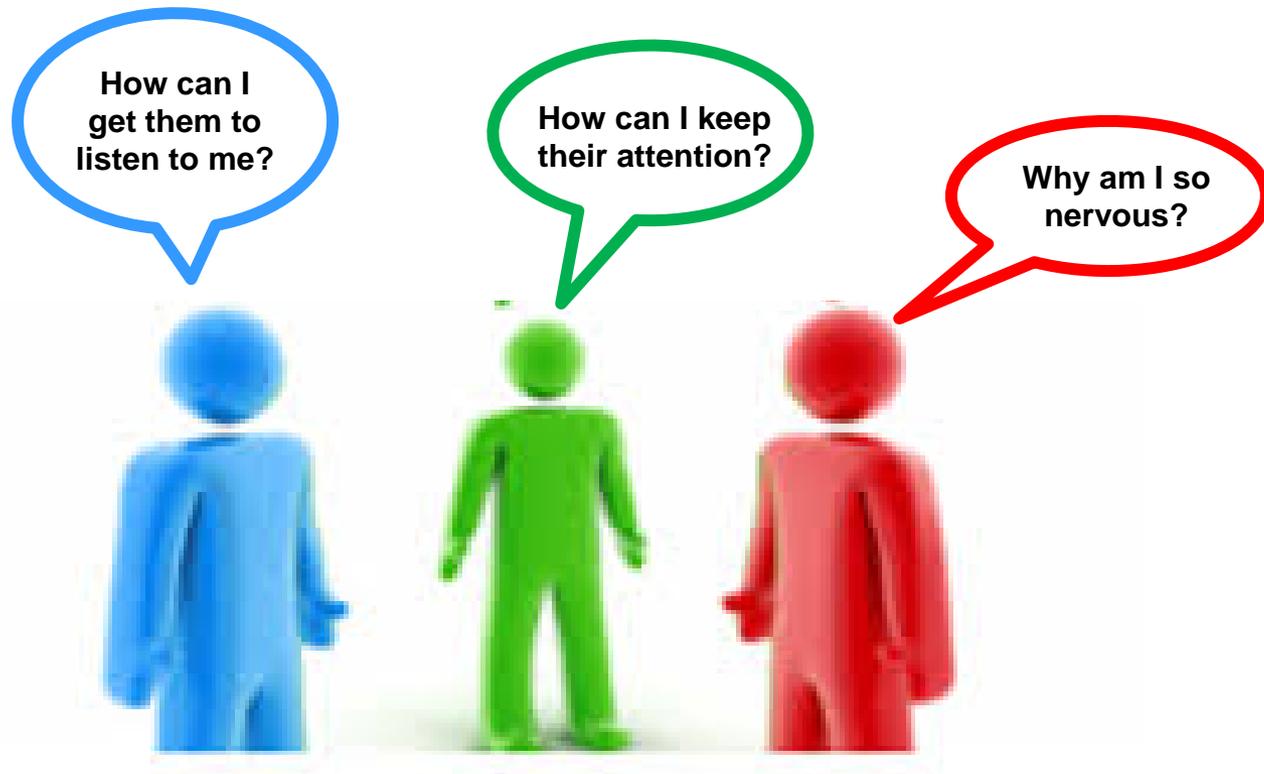
- The purpose of a presentation is to convey ideas, concepts and results; not how a project was conducted



Key Points

(for individual or group presenters):

- The purpose of a presentation is to convey ideas, concepts and results...while dealing with other “issues”



Key Points

(for individual or group presenters):

- Explain complex ideas in simple terms
- The most common medium for presentation is MS PowerPoint – however you are free to use alternatives
- Fact: whether you use PowerPoint or some other presentation medium, you will not have enough time to cover your topic in the time allotted (15 minutes)
- Decide on a few key points (3-5); that is all any audience will remember.
- Illustrate these clearly in the time available

Clear and Explicit Structure

Once you have decided on the key points, make a “structure” slide (some call this the “outline” slide).

Title

- Introduction
 - subtopic 1
 - subtopic 2
 - subtopic 3
 - subtopic 4
 - subtopic 5
- Conclusions

This will help your audience (and you) know where you are in the presentation, and where you are headed

Outline

CO₂ Storage Options

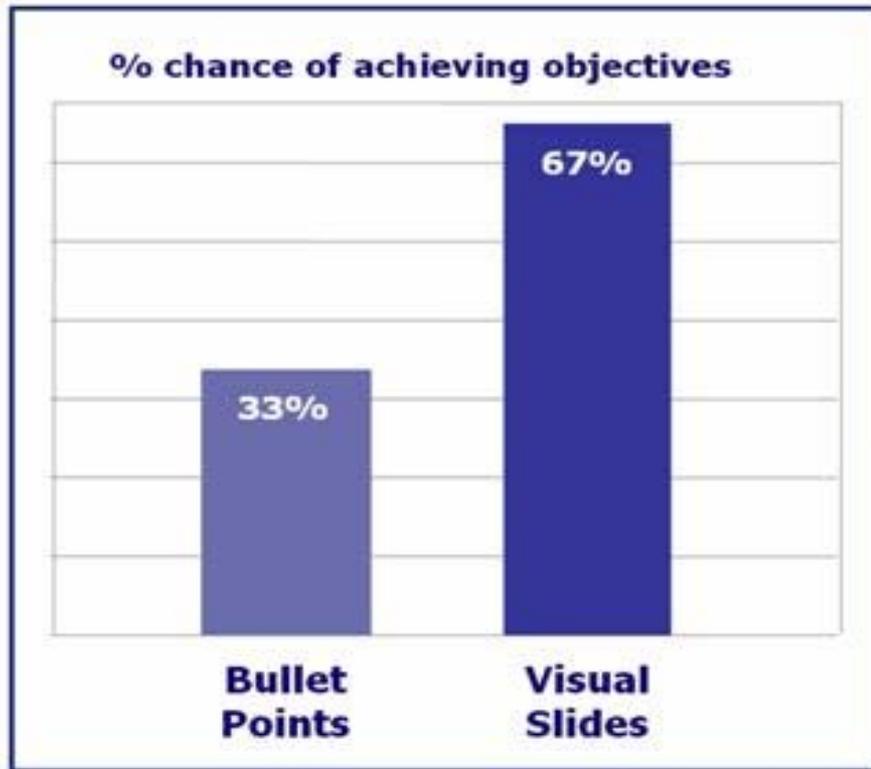
- Introduction (Tell 'em what you're gonna tell 'em)
- Oil and Gas Pools/Fields
- Coal Beds
- Deep Saline Aquifers
- Unconventional Reservoirs – tight gas sands; organic shales; salt domes, etc.
- Conclusions (Tell 'em what you've told 'em)

(Tell 'em)

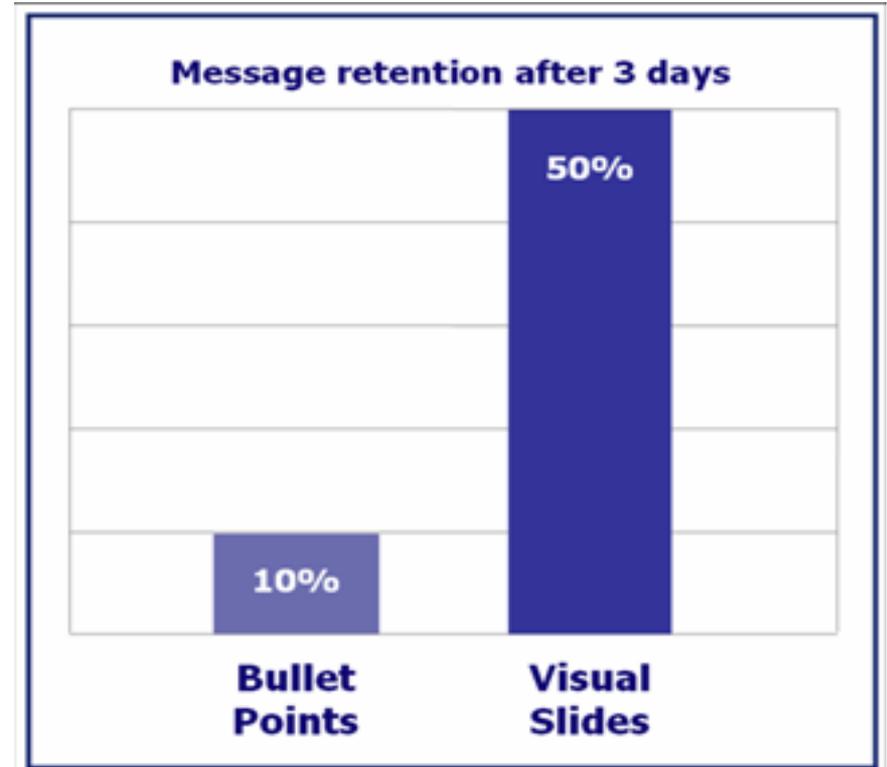
Clear Slides

- Slides should be neat, clear & uncluttered.
- For each slide, first describe what you are showing, then make observations and draw conclusions
- Do not use too many words on a slide
 - (minimise words....maximise figures)
- However, do not make the figures or text too small to see
- Use right colour / contrast for maximum visibility
- Use animation for emphasis...but judiciously...
(don't overanimate)
- Use Pointer to highlight points....but don't “overpoint”
- Number your slides

Use Figures (“Visuals”)



Decker Communications



Wharton Research

**Background &
Text Colours**

Colour Contrast Choice

**Background &
Text Colours**

Colour Contrast Choice

**Background &
Text Colours**

Colour Contrast Choice

Colour Contrast

- **Hydrodynamic Trapping:** carbon dioxide can be trapped as a gas under low-permeability cap rock (much like natural gas is stored in gas reservoirs).
- **Solubility trapping:** carbon dioxide can be dissolved into a liquid – water and/or oil.
- **Mineral Carbonation:** carbon dioxide can react with the minerals, fluids, and organic matter in the geologic formation to forms stable compounds/minerals; largely calcium, iron, and magnesium carbonates.

Stick to one font!

CO₂ is currently recovered from combustion exhaust streams for use as a commodity chemical. However, the cost of CO₂ capture using current technology is much too high (\$100-300/ton) for carbon emissions reduction applications.

Research to reduce the cost is in the early stages, and the program is exploring a wide range of technologies, including membranes, solid sorbents, CO₂ capture via the formation of CO₂/water hydrates, and advanced gas/liquid contactors.

Another approach to CO₂ capture is to develop advanced fossil fuel energy conversion processes that exhaust CO₂ in a more concentrated form, significantly reducing the capital and energy penalty cost for CO₂ capture.

EFFORTS IN THIS AREA BEING PURSUED BY THE PROGRAM ARE CLOSELY COORDINATED WITH DOE'S VISION 21 PROGRAM.

Long-term storage of CO₂ in underground geologic formations has the potential to be viable in the near-term. Many power plants and other large point sources of CO₂ emissions are located near geologic formations that are amenable to CO₂ storage. Further, in many cases injection of CO₂ into a geologic formation can enhance the recovery of oil and gas which can offset the cost of CO₂ capture.

The use of CO₂ to enhance oil and gas recovery is a common industrial practice. In the year 2000 in the United States, 34 million tons of CO₂ were injected underground as a part of enhanced oil recovery (EOR) and coal bed methane recovery (E-CBM) operations. This is approximately equivalent to the amount of CO₂ emissions from 6 million cars in one year. Research and development in this area will move the technology to make it applicable to a wider range of formations.

A novel process which currently experiences a breakthrough is the use of CO₂ in unmineable coalbeds, thus releasing the trapped methane. This process is called Enhanced Coal Bed Methane production (ECBM), and is similar to the process of using CO₂ injection to enhance production from oil reservoirs.

With EGR, the injected CO₂ is captured and stored in the pore matrix of the coal seams, releasing the trapped methane that can be used for power. Future work in the area can lead to the design of efficient null-greenhouse-gas-emitting power plants that are fuelled either by mineable coal or by the methane released from the deep coal reservoir. In a closed CO₂ process, the waste CO₂ produced from the coal or methane-powered plants is injected into the CBM reservoirs to produce more methane, and the cycle continuous.

In addition, a geological sink is established in the coalbeds, virtually eliminating any release of CO₂ to the atmosphere.

Saline formations do not contain oil and gas resources and thus do not offer the value-added benefit of enhanced hydrocarbon production. However, the potential CO₂ storage capacity of domestic saline formations is huge; estimates are on the order of several hundred years of CO₂ emissions.

The primary goal of research in this area is to understand the behavior of CO₂ when stored in geologic formations so that CO₂ can be stored in a manner that is secure and environmentally acceptable.

TOO Many Words

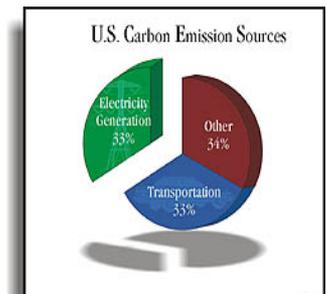
Slide “Real Estate”

What are the major sources of CO₂?

Roughly one third of the United States’ carbon emissions come from power plants. These sources would be convenient for CO₂ capture except that most use air-fired combustors, a process that exhausts CO₂ diluted with nitrogen. Flue gas from coal-fired power plants contains 10-12% CO₂ by volume, and flue gas from natural gas combined cycle plants contains from 3-6% CO₂. Concentrated CO₂ (greater than 90%) is needed for most storage, conversion and reuse.

Wasted Space

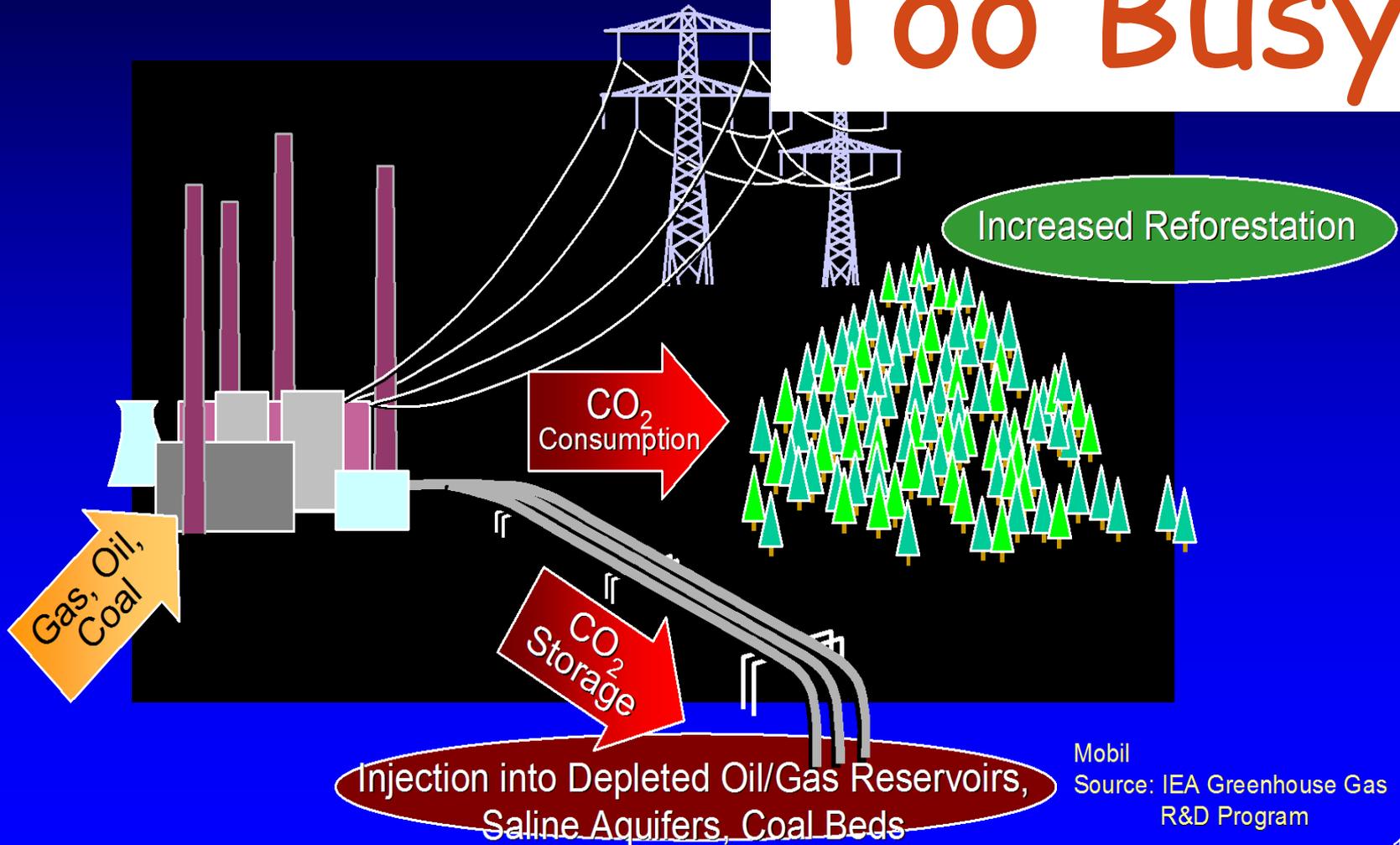
Wasted Space



CO₂ Capture and Storage

Potential for Reducing CO₂ Emissions from Fossil Fuel Power Generation

Too Busy



Mobil
Source: IEA Greenhouse Gas
R&D Program

Slide Animation

Is The Air Getting Cleaner Or Dirtier?

According to the U.S. Environmental Protection Agency's (EPA) latest Ten-Year Air Quality and Emissions Trends report, there have been significant reductions in all 6 criteria pollutants and reductions are expected to continue.

The pollution **Too Distracting** were:

Carbon Monoxide (CO)	down 37%
Lead	down 78%
Nitrogen Dioxide (NO ₂)	down 14%
Ozone	down 6%
Particulate Matter (PM-10)	down 22%
Sulfur Dioxide	down 37%

Know Your Audience

- **Pitch your presentation at the right level for your audience.**
- **Are they specialists or generalists?**
- **Most audiences are made up of individuals from varied technical backgrounds**
- **Use your introduction and key points to illustrate significance of your work / presentation**
- **There should be something in your talk for all of the audience as well as a little bit of real detail for the small percentage who will be specialists in your topic.**

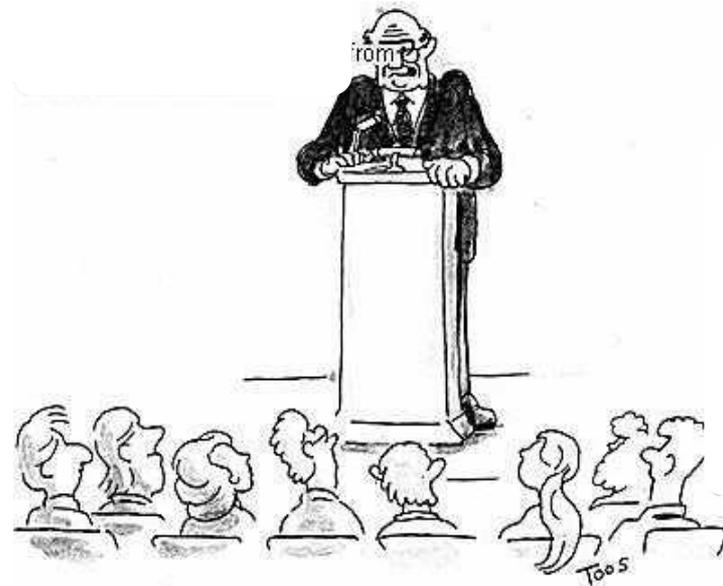
Winning or Losing Your Audience

- **The introduction is crucial!**
- **Key is to make significance and context clear**
 - **Why should they listen**
 - **Why did you bother to do this work**
- **Interact with your audience:**
 - **make eye contact...with more than 1 or 2 people**
 - **ask rhetorical questions**

Winning or Losing Your Audience

Using Humour:

- Humorous comment at introduction useful
- Breaks the ice and helps audience identify with you



"I'm going to begin with a joke
so we can get the humor out of the way."

- However, do not become a comedian!
- Inappropriate (off-colour, sexist, racist) comments are a no-no!

Winning or Losing Your Audience

- **The “close” will be the main (only?) thing your audience remembers!**
- **Key is to end your talk with definitive conclusions**
 - **Tell ‘em what you told ‘em**
 - **Significance of what you told ‘em**
- **Timing: Finish in the allotted time!**
 - **allow time for questions**
 - **use this opportunity to clarify your message**

Winning or Losing Your Audience

Timing is everything....stick to your allotted time (15 mins)



The Eminent Speaker Winds Up Her Talk

Eminent Speaker: "As the lecture was longer than I intended, I feel flattered that you have stayed right to the very end"

Remaining participant: "It's all right; I have to stay anyway, as I am the custodian, and have to lock the doors.... besides, I draw overtime pay, so please, do carry on!"

Winning or Losing Your Audience

- **Your delivery is important**
 - Diction should be clear, careful and not too fast
- **The more you practice, the easier it will be**
- **Deliver, don't read!**
 - Don't read from slides
 - Don't read from notes
 - Put a few prompts (key points) on slide or on index card
- **The more you practice, the easier it will be**
- **Practice, Practice, Practice!**
 - you will need several practice runs (4-5) for diction & timing