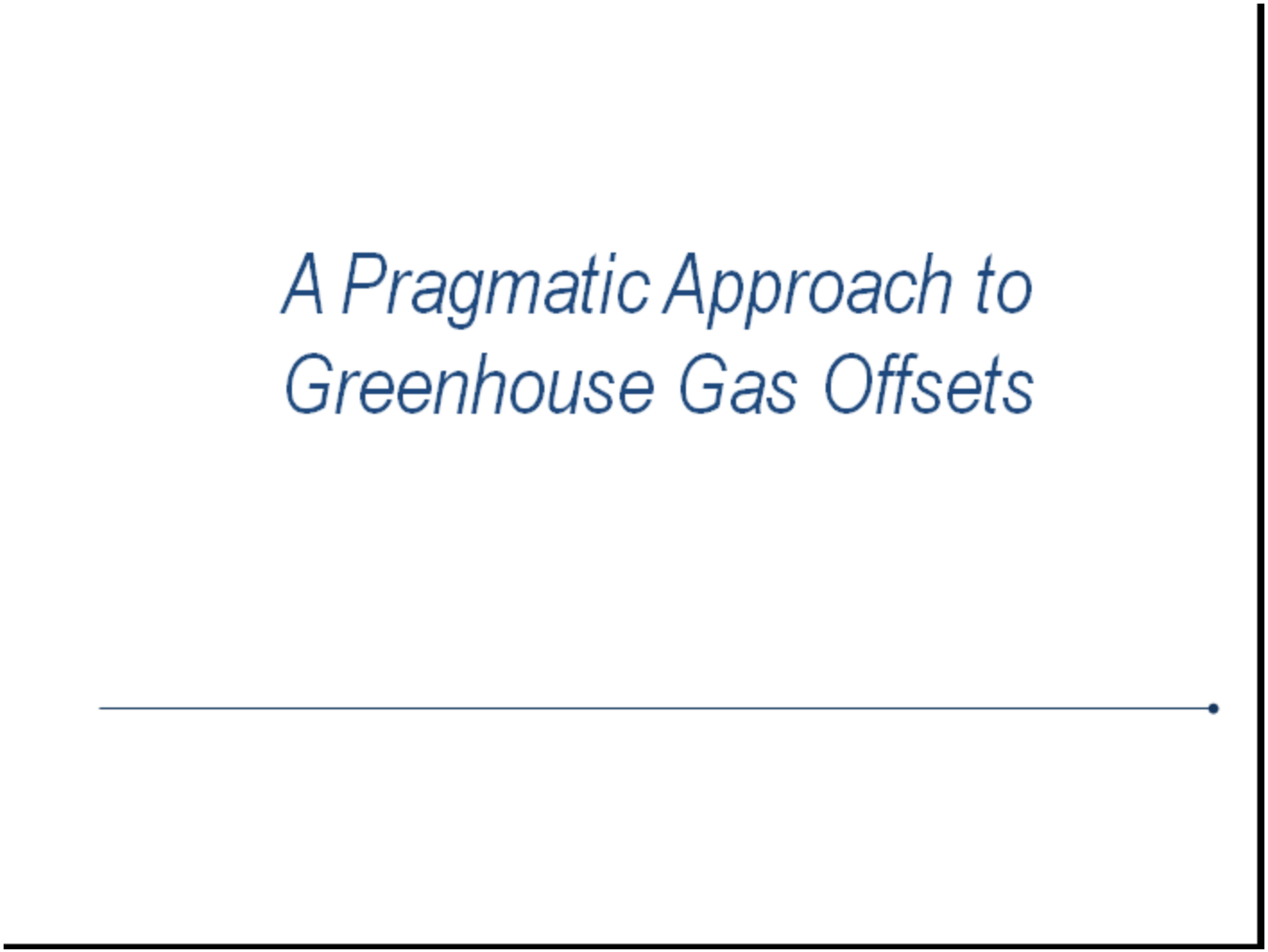
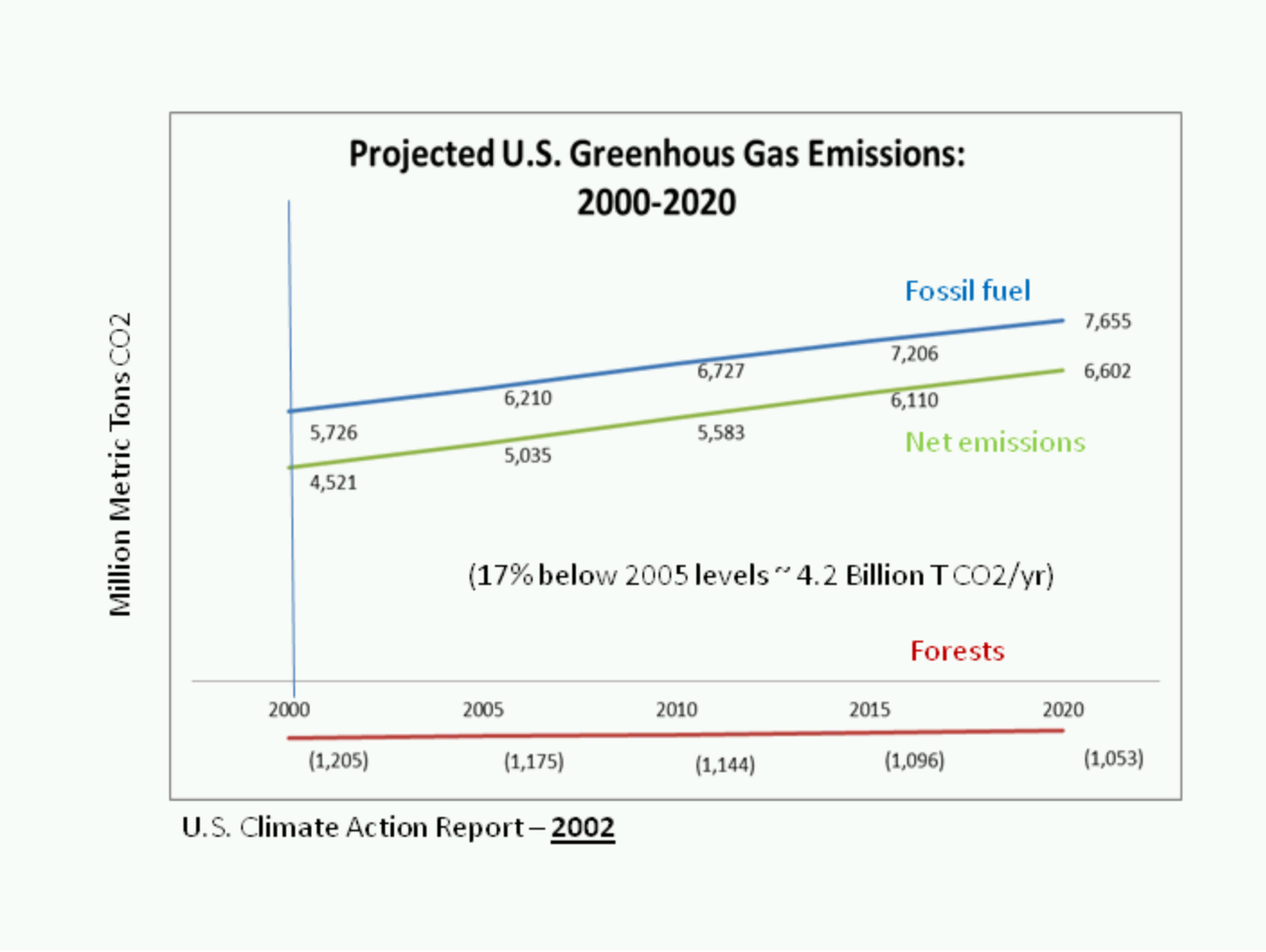
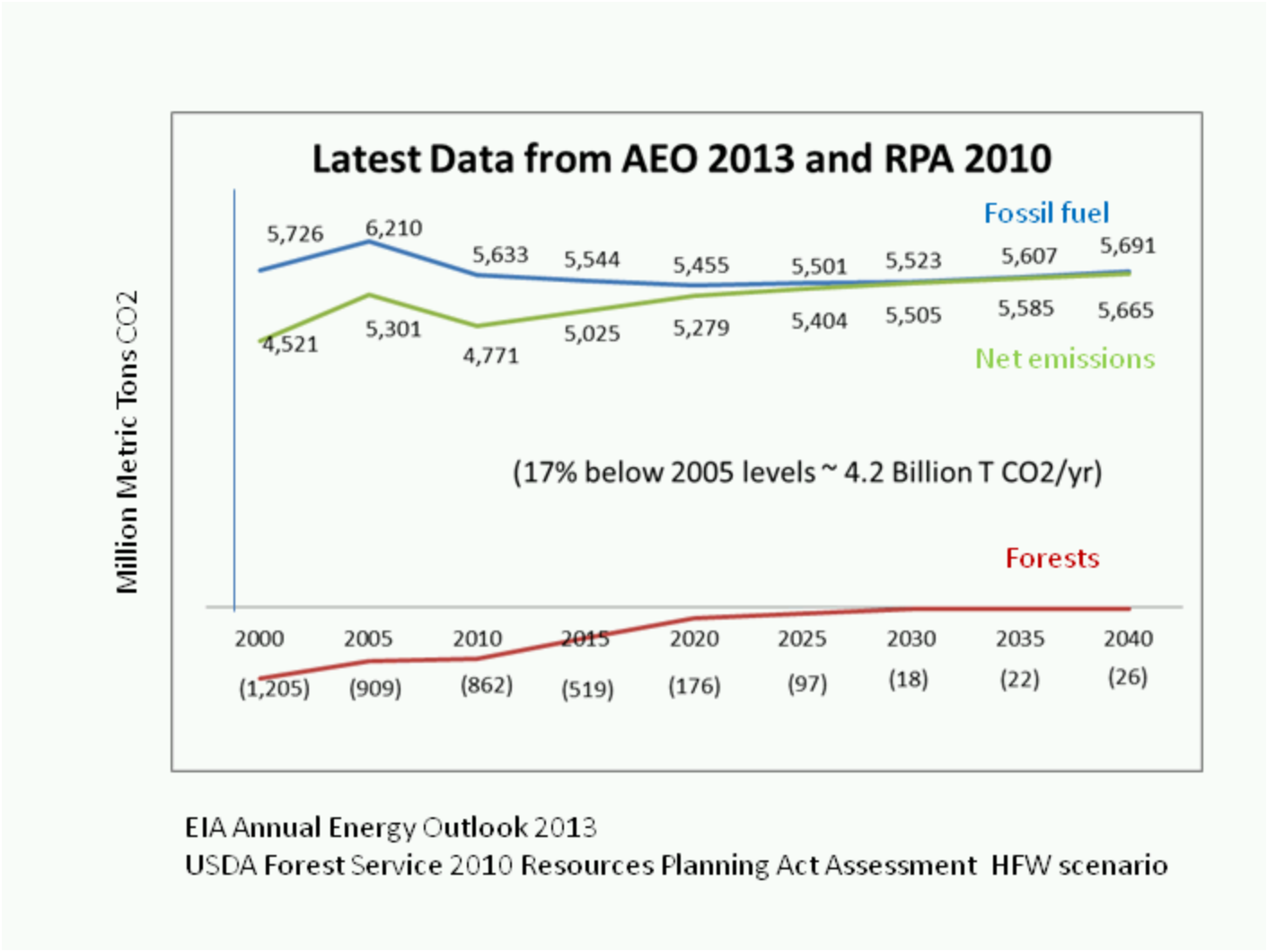


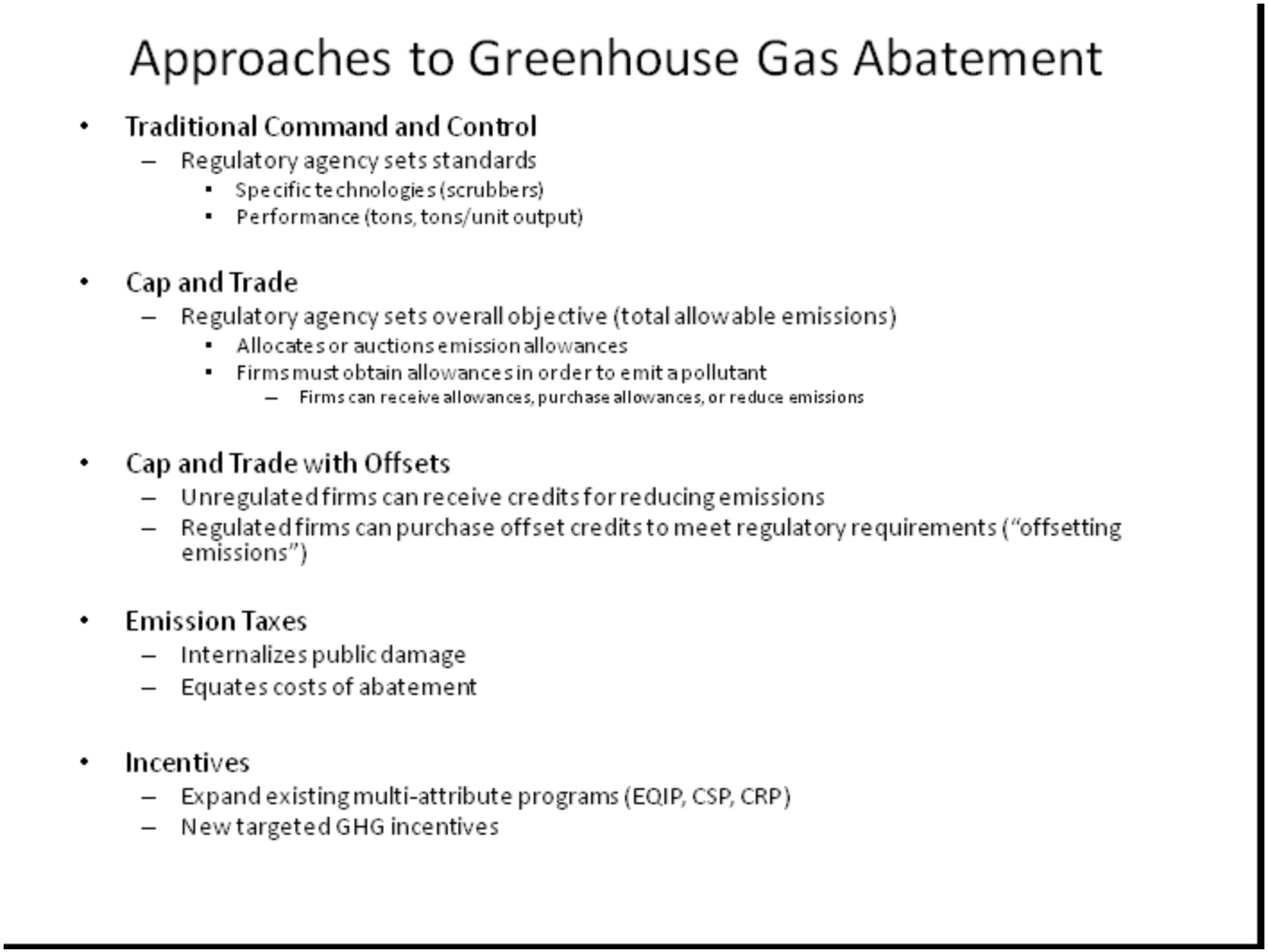
Slide 1


Projected U.S. Greenhous Gas Emissions:
2000-2020
Million Metric Tons CO2
Fossil fuel
7,655
7,206
6,727
6,602
6,210
6,110
5,726
5,583
Net emissions
5,035
4,521
(17% below 2005 levels ~ 4.2 Billion T CO2/yr)
Forests
2000
2005
2010
2015
2020
(1,205)
(1,175)
(1,144)
(1,096)
(1,053)
U.S. Climate Action Report – 2002

Slide 2


Latest Data from AEO 2013 and RPA 2010
Million Metric Tons CO2
Fossil fuel
5,726
6,210
5,633
5,544
5,455
5,501
5,523
5,607
5,691
Net emissions
4,521
5,301
4,771
5,025
5,279
5,404
5,505
5,585
5,665
(17% below 2005 levels ~ 4.2 Billion T CO2/yr)
Forests
2000
2005
2010
2015
2020
2025
2030
2035
2040
(1,205)
(909)
(862)
(519)
(176)
(97)
(18)
(22)
(26)
EIA Annual Energy Outlook 2013
USDA Forest Service 2010 Resources Planning Act Assessment HFW scenario

Slide 3



Approaches to Greenhouse Gas Abatement

Attributes of Cap-and-Trade

Concept: Regulators set overall limits on emissions (or environmental performance). Firms must have allowances to emit the pollutant. Allowances can be bought, sold, or transferred

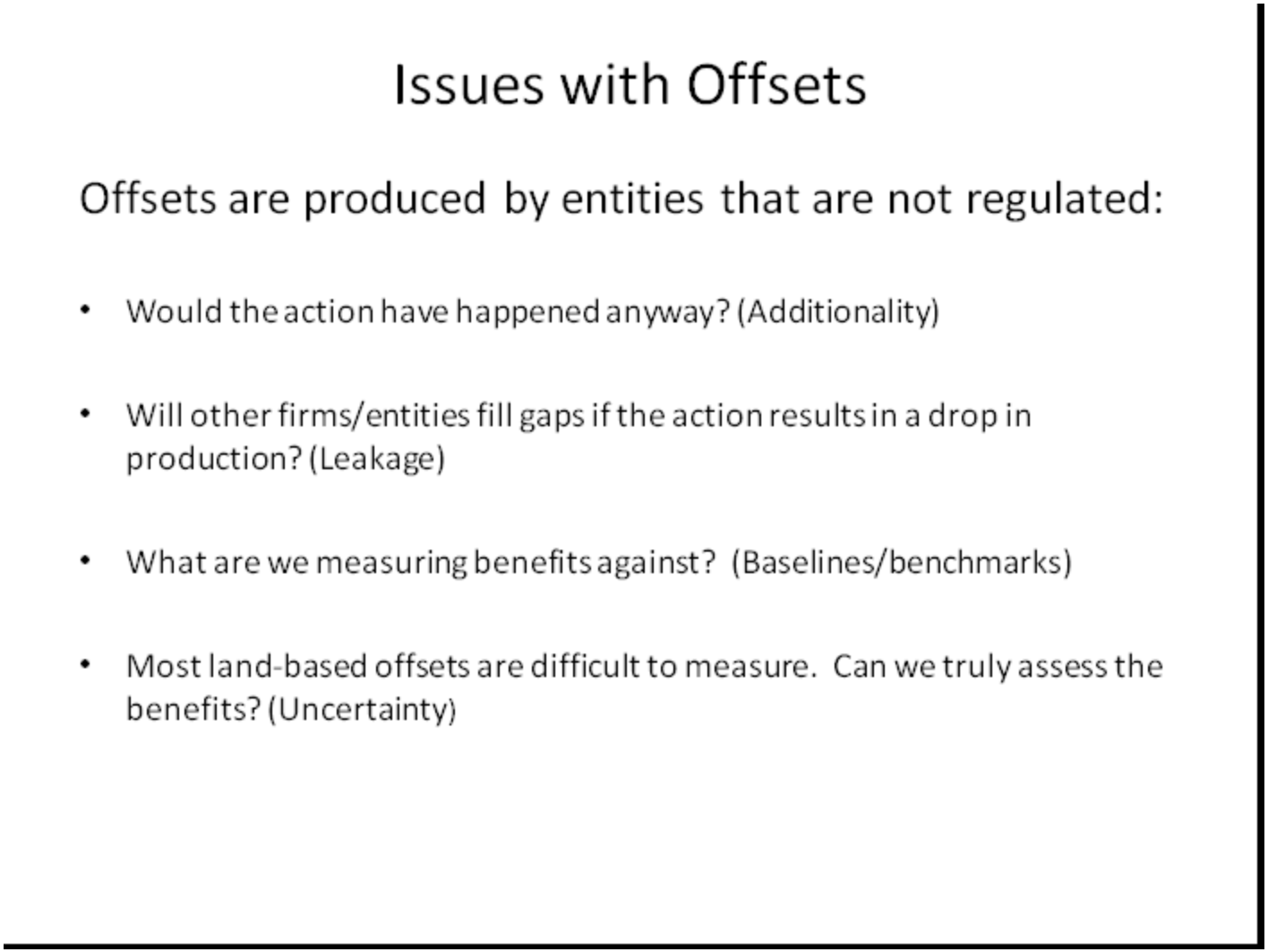
Attributes:

- Establishes clear property rights for pollutants
- Taps market forces to efficiently allocate resources to reduce pollution
- Provides incentives to innovate
- Equates costs of environmental control across all polluters

Concerns:

- Makes it difficult to address localized environmental damage
- Could concentrate pollution in lower income areas
- Distribution of allowances creates new assets– and transfers of wealth

Attributes of Cap-and-Trade



Issues with Offsets

Offsets Market "Lingo"

Issue 1: Additionality – Would the action happen anyway?

- Potential solutions:
  - Limit entry (categorical exclusions)
    - Exclude activities
  - Document justification,
    - Reporting requirements
    - Barrier tests
  - Discount credits,
    - Proportional additionality
  - Accept it (adjust goals)

Offsets Market "Lingo"

Offsets Market "Lingo"

Issue 2: Leakage – Will the environmental impact move elsewhere?

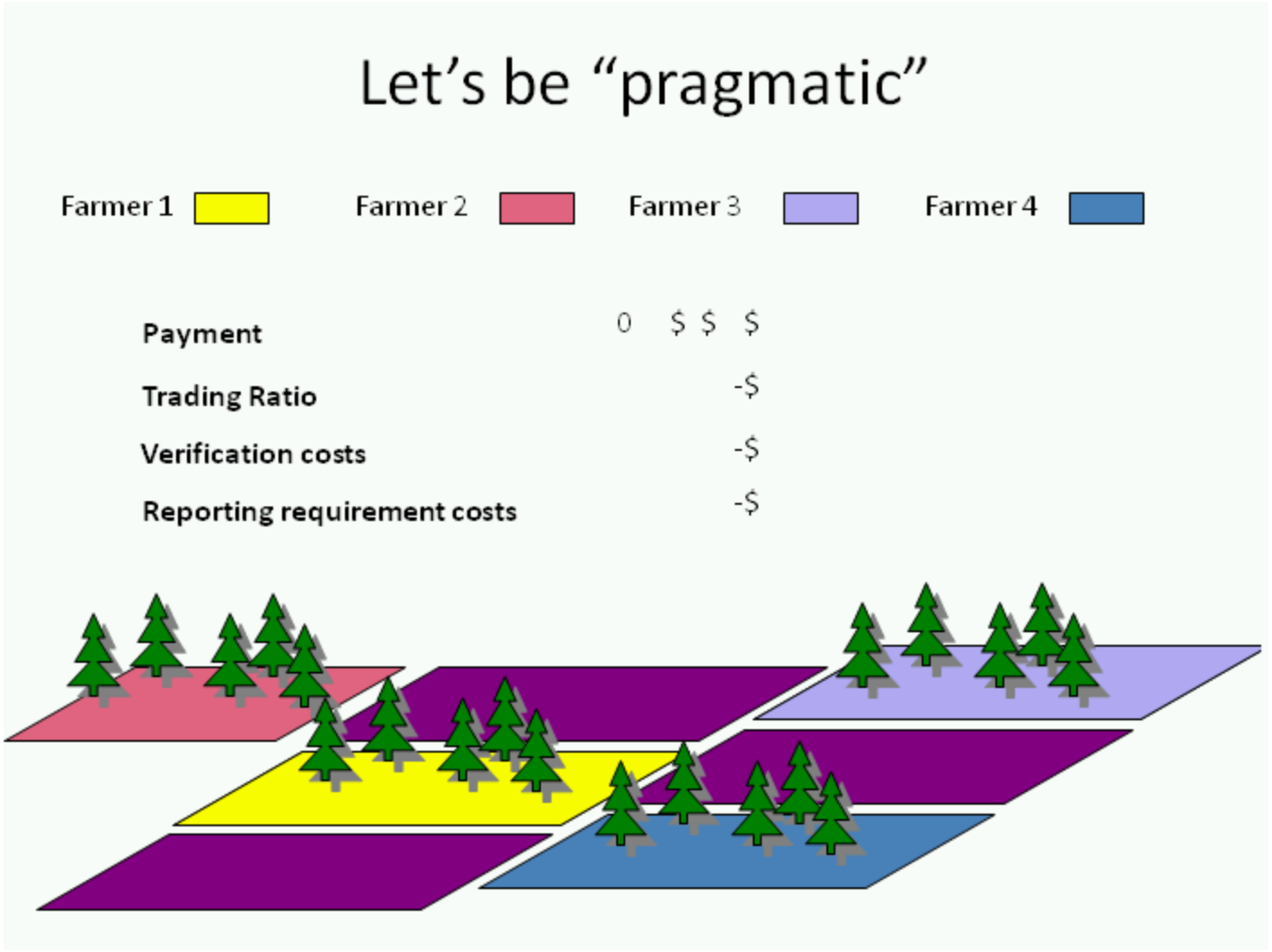
Internal Leakage: Swapping fields within an operation.

- Potential solution:
  - Require entity-wide reporting.

Market Leakage: Others respond to reduction in supply of goods.

- Potential solutions:
  - Discount credits,
  - Exclude activities,
  - Reporting requirements -- document that changes did not occur elsewhere,
  - Accept it (adjust goals)

Offsets Market "Lingo"



Let's be "pragmatic"

Offsets Market "Lingo"

Issue 3: Baselines –What are we measuring benefits against?

Options:

Historic

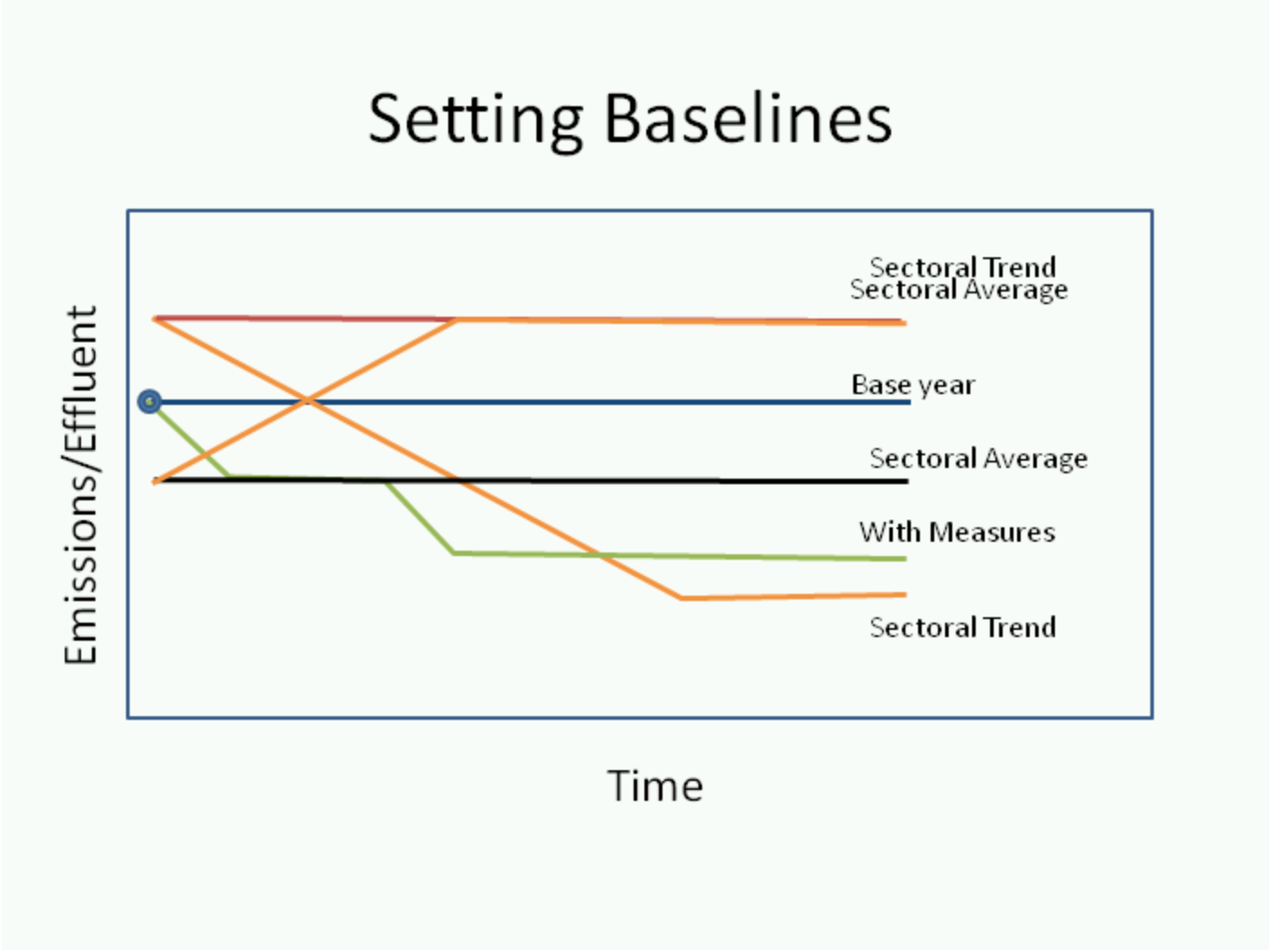
- Actual performance - Base year/period
- The actions of others

Expectations

- Projections of business-as-usual;
- Projections of expected improvements;
- Projections of expected average business practice
- Unique projections for each project or standard projections based on industry averages.

Technology standards/cutoffs

Offsets Market "Lingo"



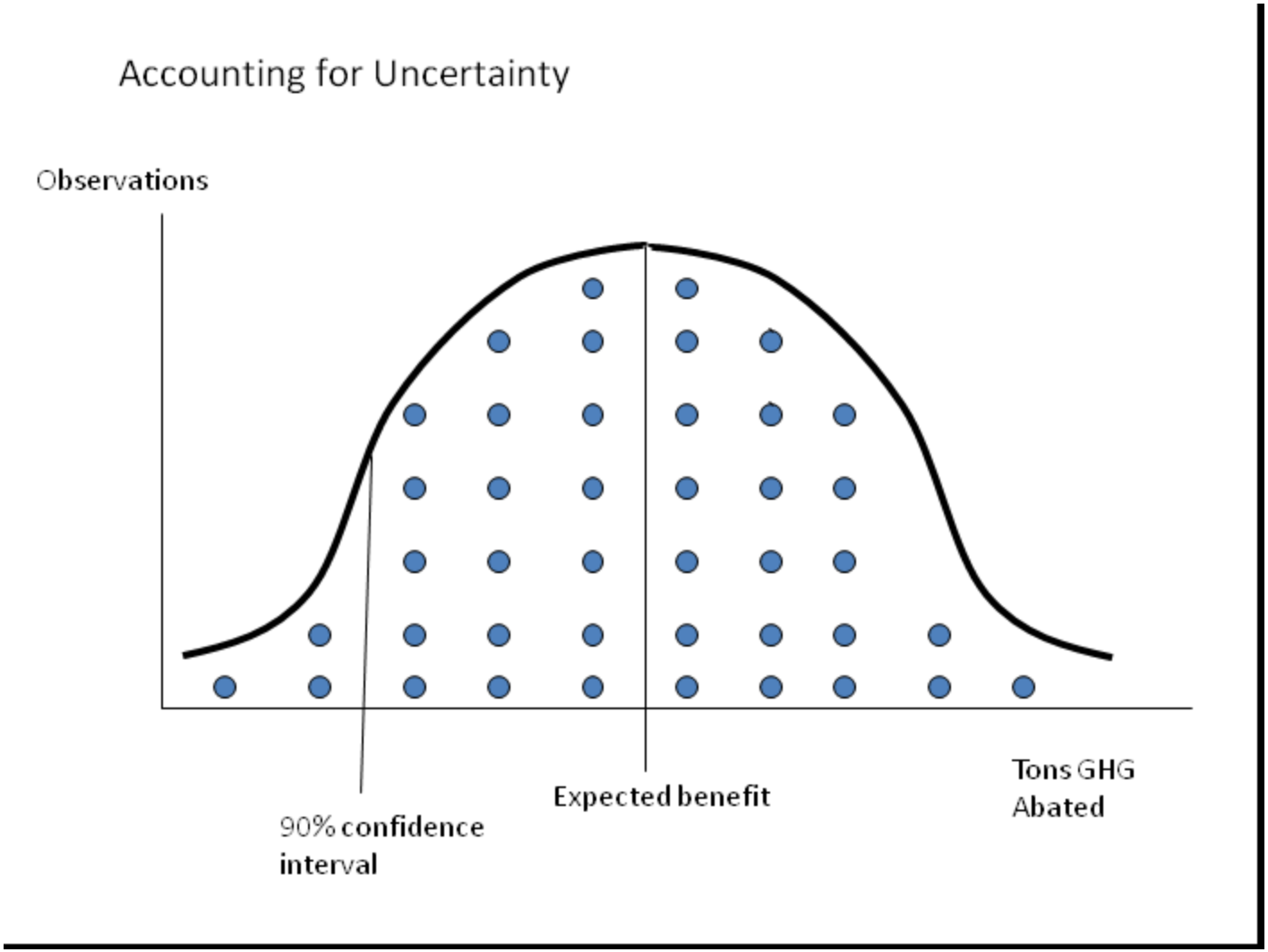
Setting Baselines

Offsets Market "Lingo"

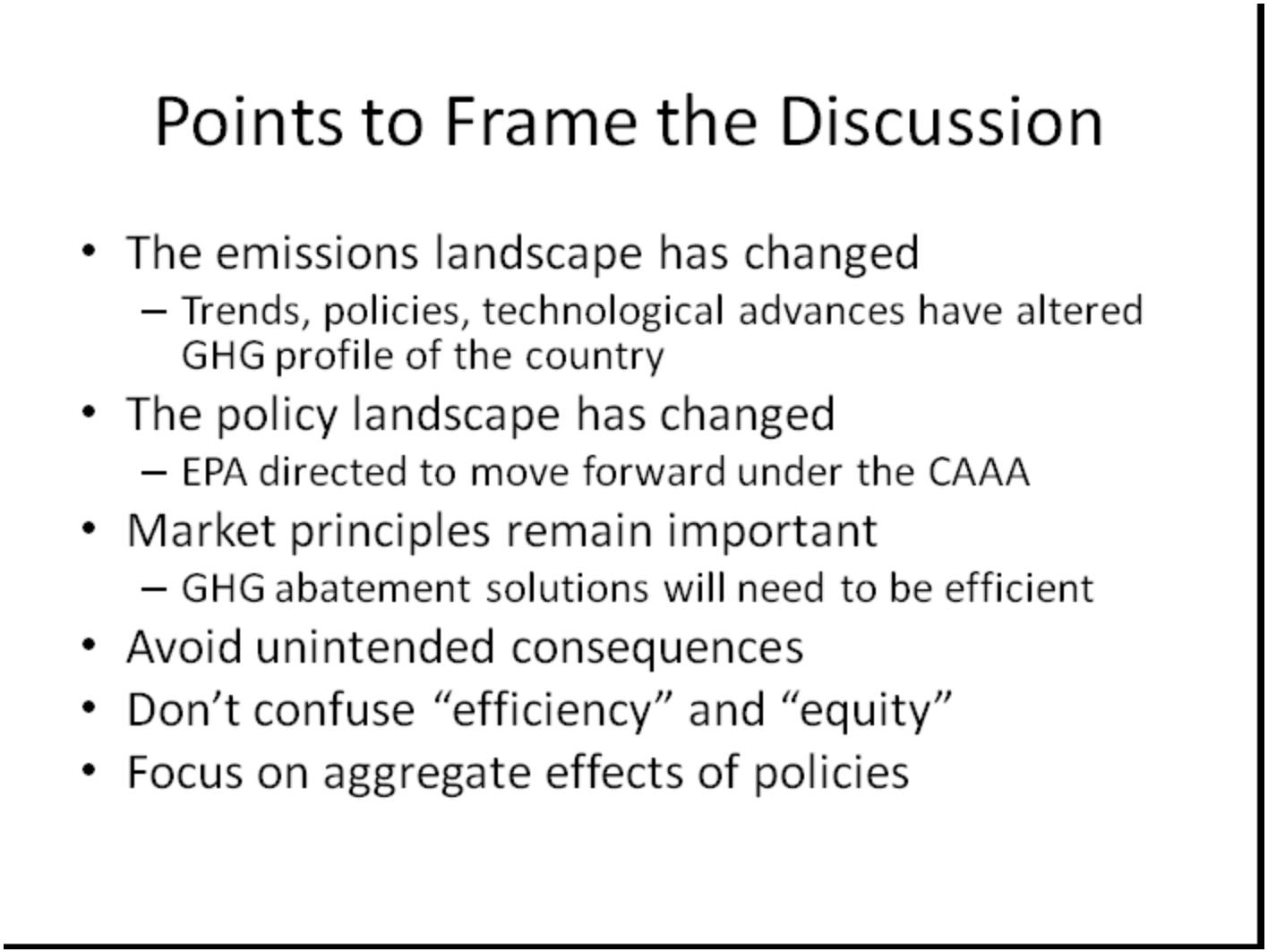
Issue 4: Uncertainty –What if our estimates are wrong?

- Potential solutions:
  - Improve estimates
  - Exclude categories or pools;
  - Discount credits using an uncertainty factor,
    - One-tailed tests
  - Accept it (recognize that uncertainty does not imply bias – laws of large numbers apply)

Offsets Market "Lingo"


Accounting for Uncertainty
Observations
90% confidence interval
Expected benefit
Tons GHG Abated

Slide 13



Points to Frame the Discussion