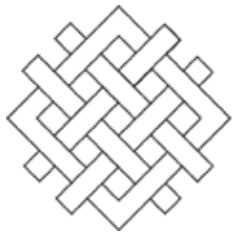


Wisconsin Global Warming Task Force Cap and Trade Discussion



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5/14/2008

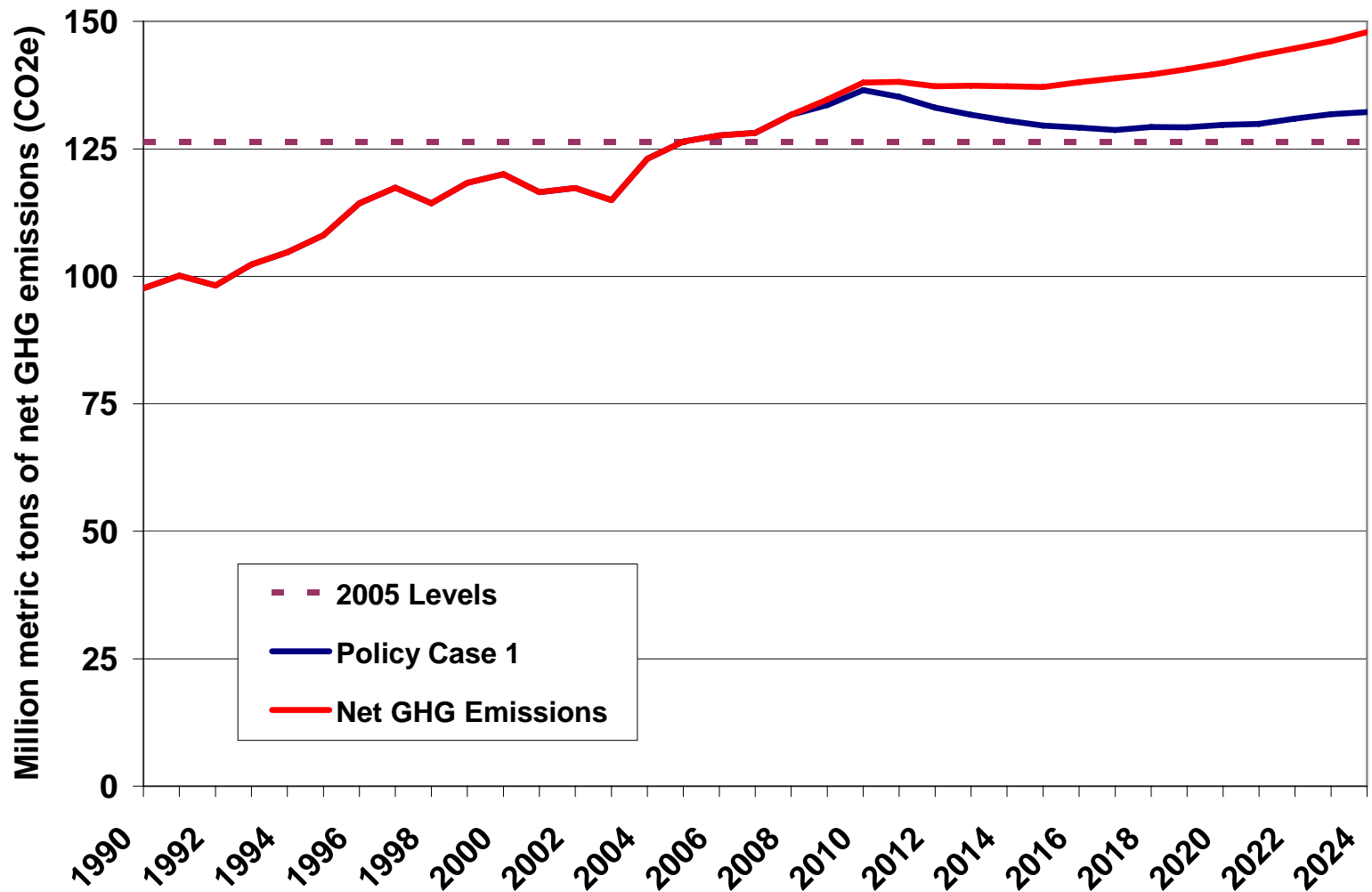
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Topics to cover

- Context: Why talk about cap and trade
- Review of design basics
- Review of most contentious issues and options
 - Start dates, targets and timetables
 - Scope, coverage and point of regulation
 - Allowance distribution
 - Cost containment
 - Offsets
- Conclude
- Workgroup Co-chair conversation

Stabilizing and reducing WI emissions will be challenging without mandatory limits

Historic and projected net WI emissions and policy case one, 1990-2024



Questions to consider as Task Force contemplates cap and trade

- Should it be pursued?
- If yes:
 - Should it be at least regional? Federal?
 - When should it start?
 - What should be covered?
 - How fast should the cap decline?
 - How should allowances be distributed?
 - How should disproportionate cost impacts be handled?
 - Should offsets and other flexible mechanisms be allowed? To what degree?
 - What is most important to Wisconsin?

What is Cap-and-Trade?

- Cap on total emissions from a specific set of sources
- Cap is divided up into one-ton permits, or “allowances”; allowances are distributed into market
- Emissions sources are required to hold allowances equal to their emissions
- Trading in the emissions trading market operates to ensure most cost-effective reductions
- Sources will reduce as long as cost of allowances is greater than cost of reductions
- Goal: emissions reductions.

Carbon Tax vs. Cap-and-Trade

<ul style="list-style-type: none">• Extent of Emissions reductions uncertain	<ul style="list-style-type: none">• Emissions reductions fixed by Cap
<ul style="list-style-type: none">• Price of carbon set at level of tax	<ul style="list-style-type: none">• Price of carbon is function of supply and demand in emissions market
<ul style="list-style-type: none">• Both establish market signal to reduce emissions	<ul style="list-style-type: none">• Both establish market signal to reduce emissions
<ul style="list-style-type: none">• Source of revenue that can be used for complimentary purposes	<ul style="list-style-type: none">• Source of revenue can come from auction of allowances

BASIC BUILDING BLOCKS OF CAP-AND-TRADE

ENFORCEMENT & PENALTIES FOR NON-COMPLIANCE

SOURCES “TRUE UP” AT END OF EACH COMPLIANCE PERIOD

ESTABLISH COMPLIANCE PERIOD FOR SOURCES

DISTRIBUTE OR AUCTION ONE “ALLOWANCE” FOR EACH TON IN BUDGET

DETERMINE THE REDUCTION OVER TIME (i.e., SUCCESSIVE BUDGETS REDUCED)

ESTABLISH ANNUAL EMISSIONS CAP (OR ANNUAL ALLOWANCE BUDGET)

ESTABLISH AGGREGATE EMISSIONS BASELINE FOR SOURCES

REQUIRE ENTITIES TO MEASURE, MONITOR & REPORT EMISSIONS

IDENTIFY ENTITIES TO BE COVERED IN ONE OR MORE SECTORS



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ADDITIONAL DESIGN ISSUES

BASIC BUILDING BLOCKS OF CAP-AND-TRADE

ENFORCEMENT & PENALTIES FOR NON-COMPLIANCE

SOURCES "TRUE UP" AT END OF EACH COMPLIANCE PERIOD

ESTABLISH COMPLIANCE PERIOD FOR SOURCES

DISTRIBUTE ONE "ALLOWANCE" FOR EACH TON IN ALLOWANCE BUDGET

DETERMINE THE REDUCTION OVER TIME (i.e., SUCCESSIVE BUDGETS REDUCED)

ESTABLISH ANNUAL EMISSIONS CAP (OR ANNUAL ALLOWANCE BUDGET)

ESTABLISH AGGREGATE EMISSIONS BASELINE FOR SOURCES

REQUIRE SOURCES TO MEASURE, MONITOR & REPORT EMISSIONS

IDENTIFY SOURCES TO BE COVERED IN ONE OR MORE SECTORS

PROVISION FOR NEW SOURCES?

LINKING TO OTHER PROGRAMS?

CREDIT FOR EARLY ACTION?

OFFSETS?

FLEXIBILITY & COST-CONTAINMENT?

MANDATORY EMISSIONS REPORTING

Review of common contentious issues in cap and trade

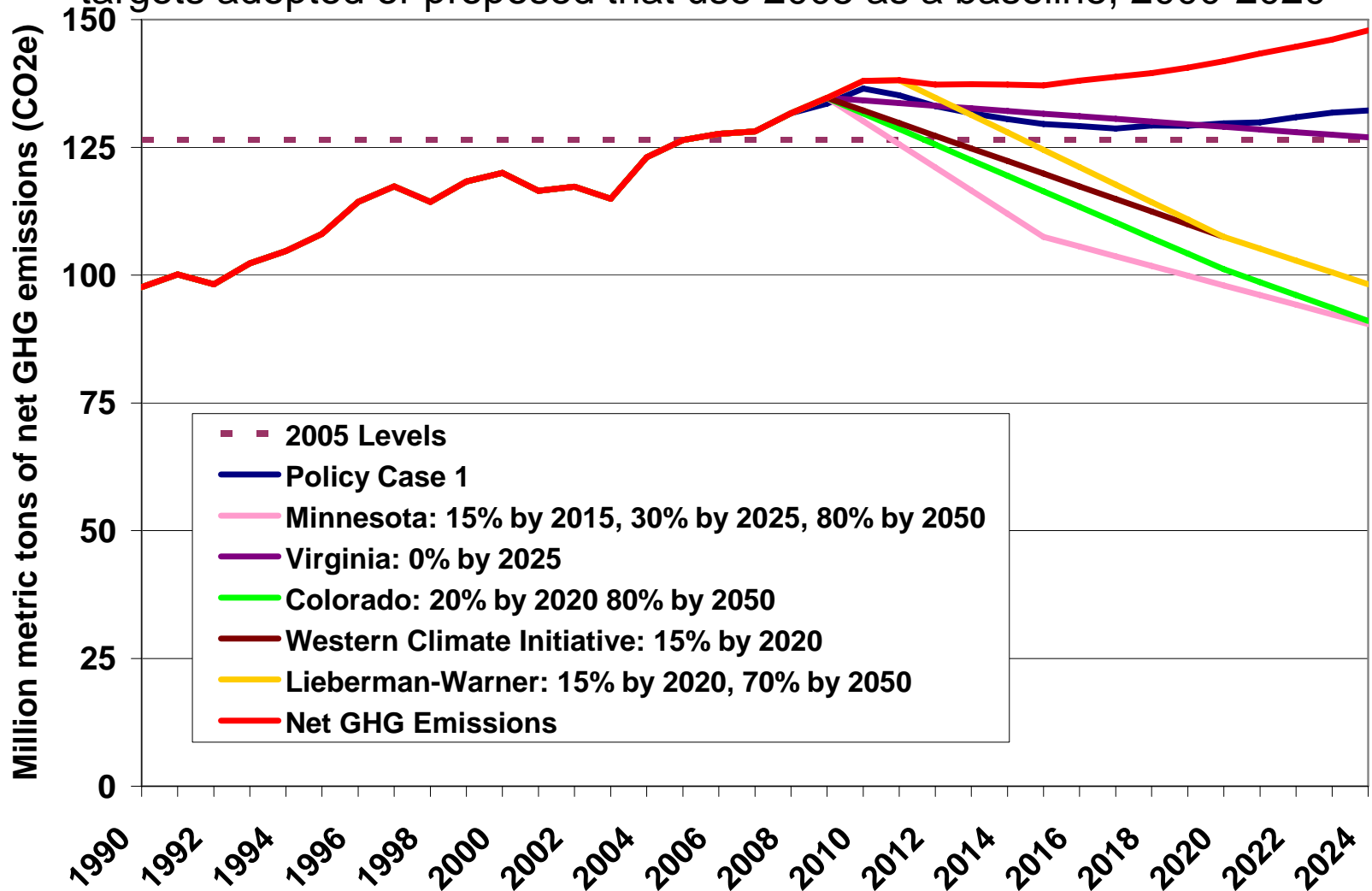
- Start date, targets and timetables
- Scope of coverage and point of regulation
- Allowance distribution
- Cost containment
- Offsets

Start date, targets and timetables

- Tied to overall GHG reduction goals
- To be informed by modeling results
- What additional GHG reductions should take place beyond those achieved by other measures?

Examples of GHG targets considered elsewhere

Historic and projected net WI GHG emissions, policy case one and reduction targets adopted or proposed that use 2005 as a baseline, 2000-2020



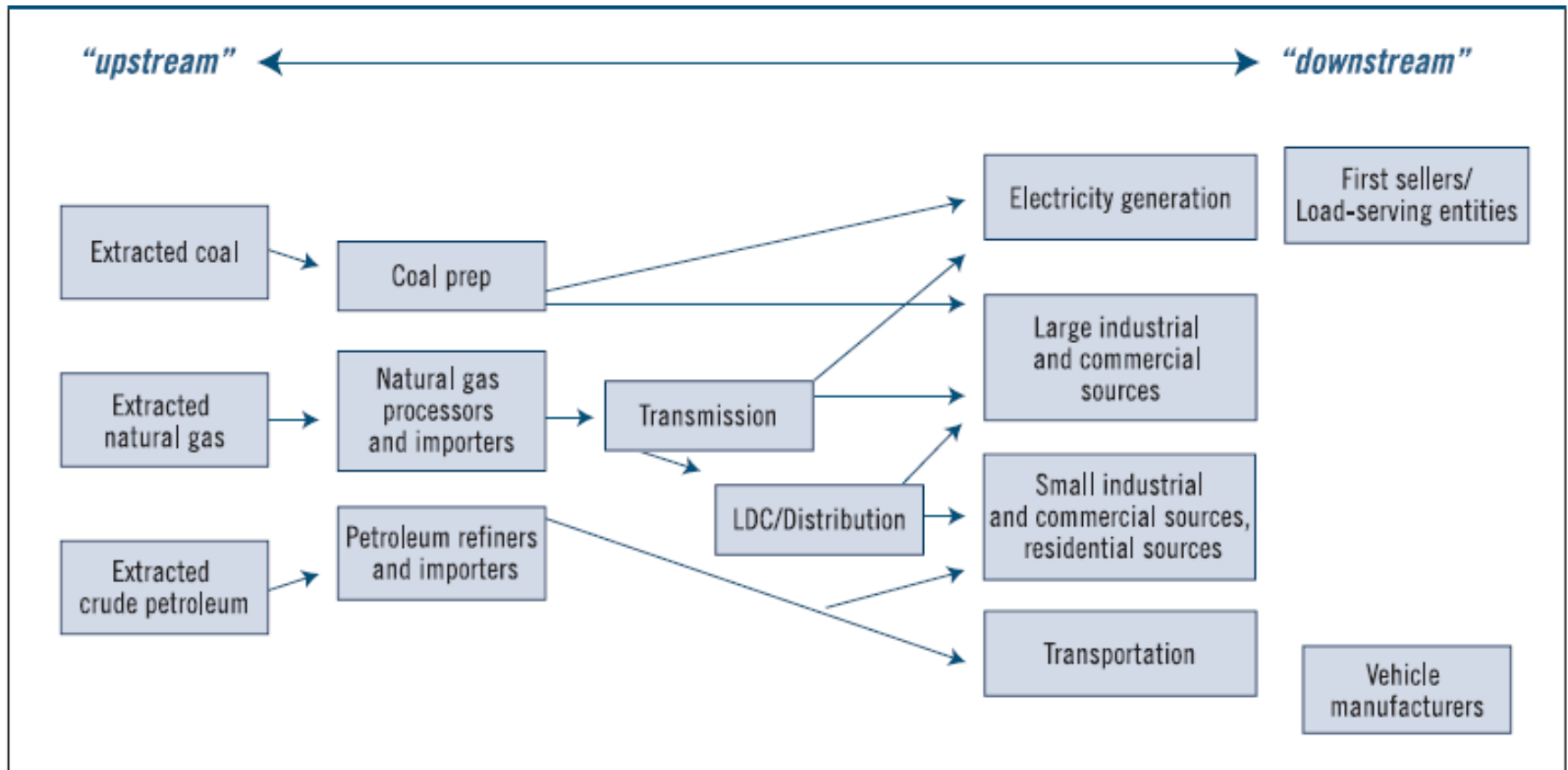
Scope and point of regulation

- Scope of Coverage: What GHG emissions are included in the cap and trade program?
 - What greenhouse gases?
 - What sectors?
 - What facilities? What types and thresholds?
 - What fuels?
 - Combustion emissions included? Process-related emissions?
- Point of Regulation: Who has the obligation to surrender allowances to match emissions?
 - Source of fuels or other GHG-containing substances (upstream)?
 - Distributors of fuel or electricity (midstream)?
 - Emissions sources, where GHGs are emitted into the atmosphere (downstream)?
 - Hybrid of these? (cover large sources downstream, address the rest of the economy at a different point of regulation or through other policy tools)

Scope & Point of Regulation (cont.)

- Consider account administrative feasibility
- Integrity of emissions data
 - Availability of data before setting baseline key consideration
 - Ability to measure, monitor & report emissions data at the point of regulation
- Number of covered sources
 - Too large a number administratively complex
 - Too small a number threatens viability of emissions commodities market

Point of Regulation upstream or downstream?



Examples of scope and point of regulation

- Acid Rain Program:
 - Scope: Electric power sector SO₂
 - Point of regulation: Electric generators
- Regional Greenhouse Gas Initiative:
 - Scope: Electric power sector CO₂
 - Point of regulation: Electric generators
- EU Emissions Trading System
 - Scope: Electric power and Industrial CO₂
 - Point of regulation: Large point source emitters

Allowance Distribution Key Concepts

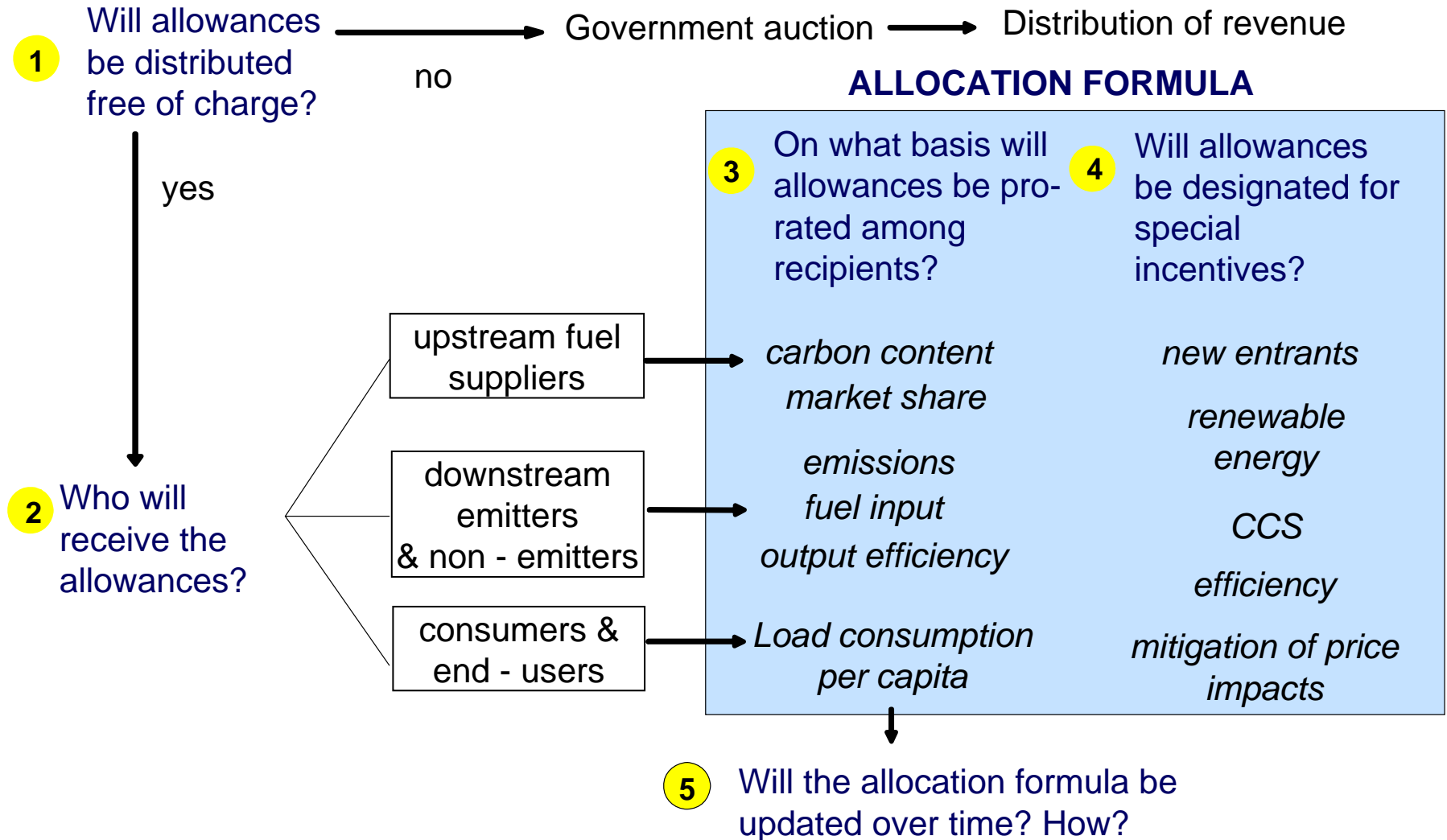
- Allowances are assets created by government
- Value is not known in advance
- Distribution is much like handing out money
- Allocation is inherently a political exercise

Allowance Distribution Key Concepts

- Allowance distribution *does not* affect the environmental integrity of the cap
- Distribution *does* affect who bears the costs of the program
- Distribution methods present a series of economic trade-offs
- Regardless of distribution method, the monetary incentive to reduce emissions remains the same

Allowance distribution in 5 steps

Simplified Allocation Decision Tree



Summary of primary distribution options

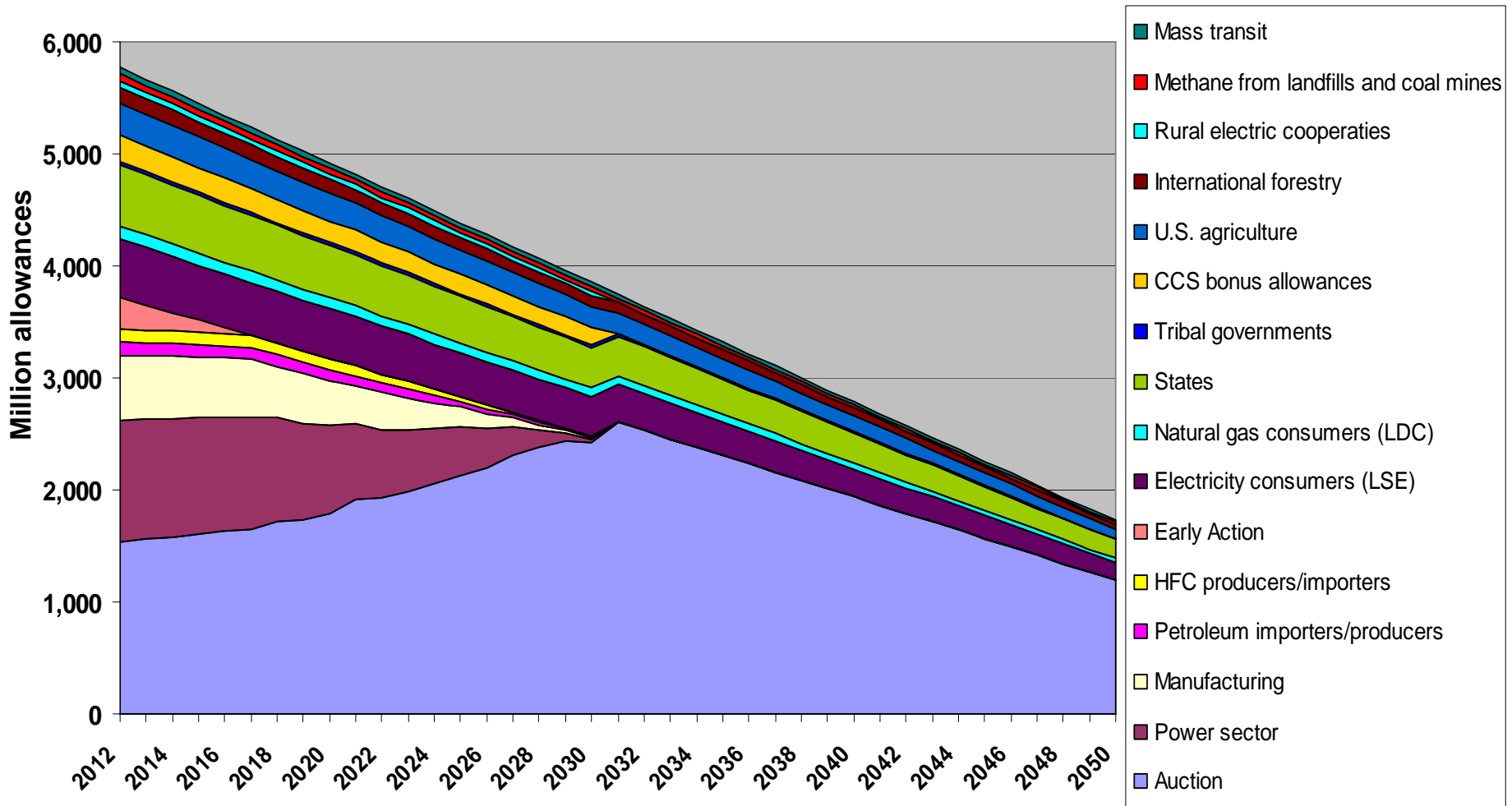
Type	Description	Examples
Grandfathering	Allocations to existing sources, based on past emissions.	U.S. SO ₂ Program; Most EU ETS Members
Output-based, Updated	Allocations to existing emissions sources, based on recent emissions per unit of output; updated every X years	Certain Northeast States in NO _x Program.
Input-based, Updated	Allocations to existing sources, based on recent heat input; updated every X years	Certain Northeast States in NO _x Program.
Auction	Allowances sold at auction	Most RGGI states; Partial Auctions in EU; Small US SO ₂ Auction

Pros and Cons of Distribution Options

Type	Pros	Cons
Grandfathering	Familiar approach, insures proportional distribution for all emitters	May penalize early action, reward large emitters
Output-based, Updated	Rewards and incentivizes efficiency	May generate windfalls for non-emitters
Input-based, Updated	Avoids penalizing cogeneration	Does not fully reward efficiency
Auction	Price discovery, revenue generation for cost mitigation, other programs	May adversely affect GHG intensive sources in early years, international competitiveness issues

Allowance distribution can be a hybrid of approaches

Allowance distribution under S. 2191 Title III, 2012 through 2050



Cost Containment: Fundamentals

- Emissions trading a cost-effective tool
- Design choices affect cost of program:
 - Stringency of cap
 - Scope of program
 - Offsets
 - Linking with other programs
 - Allowance allocations
 - Energy efficiency policies
- Innovation tends to lower cost over time

Options to Control Costs

Measures that control costs but do not change the emissions cap	<ul style="list-style-type: none">-Banking;-Borrowing;-Compliance Period;-Offsets;-Use allowance value for energy efficiency or technology-Linking to other programs
Measures that suspend or break the emissions cap	<ul style="list-style-type: none">-Allowance price cap;-Payments in lieu of emissions reductions-Emissions cap “circuit breaker”
Measures that affect distribution of costs	<ul style="list-style-type: none">-Distribution of allowances

Cost Control Option Descriptions

- Banking of Allowances (e.g. nearly all programs)
 - Encourages early emission reductions
 - Can increase near-term allowance price
 - Helps with price volatility
- Borrowing of Allowances (e.g. Lieberman-Warner)
 - Delays costs; delays emission reductions
 - At the firm level, possibility of default
 - Helps with price volatility
- Longer compliance period allows more time to comply (e.g. RGGI)
 - Essentially short-term banking and borrowing

Cost Control Option Descriptions

- Offsets (e.g. EU-ETS, RGGI, Congressional proposals)
 - Allows sources to use lower cost reductions from outside covered sectors
 - Offsets can serve as “safety valve” when “on-system” reductions are too expensive
- Use of Allowance Value to Reward Energy Efficiency and Low/zero carbon technology (RGGI, Congressional proposals)
 - Energy efficiency reduces demand for allowances, thereby lowering the price of allowances
 - Reduce cost of firms’ installation of new or experimental technologies, such as carbon, capture & storage
- Linking to Other Programs (one-way: RGGI, Lieberman-Warner)
 - The more sources, more options for abatement, lower the costs
 - Need to consider stringency of cap in other system

Cost Control Option Descriptions

- Allowance Price Cap (e.g. Bingaman-Specter)
 - Suspends the cap if allowance price hits a set threshold
 - Government releases additional allowances into market
- Payment in lieu of emissions reductions (e.g. EU-ETS)
 - If allowance price hits certain threshold, cap is suspended
 - Sources pay a per ton charge instead of surrendering allowances to cover all emissions
- Emissions Cap “Circuit Breaker” (e.g. Sanders-Boxer)
 - Declining cap stops declining when allowance price threshold is triggered; resumes decline when prices drop

What is an Offset Credit?

- An offset credit is a project-based reduction that is demonstrated outside the capped sector.
- To receive credit, most existing programs require the reduction be real, surplus (or additional), verifiable, permanent, and enforceable.
- Examples of offset projects:
 - land to forest sequestration project
 - agricultural soil sequestration
 - animal manure methane digesters.
- Offsets expand the cap on covered sources in exchange for reductions outside the sector.

Offsets have trade offs

- Offsets expand options for GHG reductions, lowering allowance prices
- May result in less investment in low-carbon technologies
- Robust accounting and verification are critical to maintain market integrity
- Offsets can be limited in two general ways:
 - Supply: restricting what types of activities can generate offset credits
 - Demand: restricting how many offset credits can be used for compliance
- Program goals and technical feasibility will influence decisions.

Summary of offset design in existing/proposed programs

Programs	Supply constraint	Demand constraint
EU-ETS	<ul style="list-style-type: none">•Internationally sourced projects approved under Kyoto framework (CDM)•No forestry or nuclear	<ul style="list-style-type: none">•Phase 2: varies from state to state•Usually less than 30% of compliance obligation
RGGI	<ul style="list-style-type: none">•Initially U.S. sourced offsets from 5 specific categories: Afforestation, SF6, end use fossil fuel efficiency, methane digesters, landfill gas•Under price trigger CDM credits allowed	<ul style="list-style-type: none">•Initially 3.3% of compliance obligation•Ramps up to 10% under price triggers
Lieberman-Warner	<ul style="list-style-type: none">•Domestic offsets from uncapped sectors	<ul style="list-style-type: none">•Up to 15% of compliance obligation

Recap

- Task Force has opportunity to help Wisconsin take part in regional/national debate
- Policy design is not simple, lots of trade offs
- Detailed recommendations will be a challenge to craft
- Important to determine what's most important to Wisconsin.



Comments & Questions