

# Proposed Adjustments to the Cap-and-Trade Program's Treatment of Universities, 'But For' CHP, and Legacy Contracts

ARB Staff Workshop  
May 1, 2013  
Byron Sher Auditorium

# Logistical Information

- Slides posted at  
<http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>
- Email questions to:  
[auditorium@calepa.ca.gov](mailto:auditorium@calepa.ca.gov)
- Comments will be accepted at the above website until  
May 21<sup>st</sup>

# Agenda

- Cap and Trade Status Update
- Program Design
- Universities
- ‘But-for’ CHP facilities
- Legacy contracts

# Cap and Trade Status Update

- Cap-and-Trade Regulation effective January 1, 2012
- Regulatory Amendments effective September 1, 2012
- Emissions Compliance began January 1, 2013
- Linkage Amendments approved April 19, 2013
- Investment plan for auction proceeds heard April 25, 2013
- Additional Amendments and Offset Protocols
  - Anticipated Board consideration Fall 2013

# Cap & Trade Program Design

- Flexibility to achieve cost-effective GHG emissions reductions
- Puts a price on GHG emissions to provide incentive for efficiency and technological innovation
- Wholesale and retail prices of energy should reflect GHG costs
- Mix of free allocation and auction for lower cost emission reductions
- Most allowances allocated freely at outset of program

# Allowance Allocation

- Allowance allocations
  - To the electric sector for ratepayer benefit
  - To industrial sector for transition assistance and to prevent leakage
- Industrial allocations based on product benchmarks (preferred) or on energy benchmarks when product benchmarks not feasible
- Initial allocations of 2013 vintage allowances to electricity and industrial sectors in late 2012

# Universities, ‘but for’ combined heat and power, and legacy contracts

- Resolution 12-33 directed staff to adjust treatment of universities, ‘but for’ combined heat and power (CHP) facilities, and legacy contracts
- Transition Assistance to Universities, Legacy Contracts, and Exemption for “But For” CHP will be consistent with other allocations and with Cap-and-Trade program design

# Assistance to Universities

- Universities have taken early actions and provided leadership to reduce GHG emissions:
  - Investments in efficiency and renewable energy
  - Research and technology development



# Allocation to Universities

- Board directed staff to develop a methodology to provide transition assistance to Universities
- Staff's current thinking is consistent with ARB's allocation approach for industrial sectors
- Universities that receive allowances encouraged to further reduce emissions

# Considerations for Allocation to Universities

- Staff's current thinking is to allocate using a 'grandfathering' approach similar to the energy based allocation methodology
- Allocation declines in proportion to the cap
- Potential issue of expansion, or additional university covered entities
- First allocations would be 2015 vintage allowances

# Modified Energy-Based Allocation Approach

- Energy-based methodology uses an efficient boiler benchmark for steam and fuel benchmark for CHP
- Because University approaches to efficient energy use vary, boiler efficiency benchmarking is infeasible
- Staff's thinking is to use the fuel benchmark for University allocation
- Use average three year historical fuel use baseline to determine annual allocations going forward

# Proposed University Allocation Equation

$$A_t = (F_{\text{consumed}} * B_{\text{fuel}} - e_{\text{sold}} * B_{\text{electricity}}) * c_t$$

Where:

$A_t$  is the quantity of allowances allocated for year t

$F_{\text{consumed}}$  is the historical baseline amount of fuel consumed

$B_{\text{fuel}}$  is the efficiency benchmark per unit of energy from fuel combustion, 0.05307 Allowances per MMBtu

$e_{\text{sold}}$  is the historical average electricity sold

$B_{\text{electricity}}$  is the emissions benchmark per unit of electricity sold, 0.431 Allowances/MWh

$c_t$  is the cap decline adjustment factor for year t

# University Allocations: Questions and Comments

# “But For” Combined Heat and Power (CHP)

- A subset of CHP facilities would not be covered entities in Cap-and-Trade Program “but for” their investment in CHP
- During the first compliance period, they would face higher GHG costs than facilities without CHP
- Board Resolution 12-33 directed staff to develop a methodology to exempt steam emissions for “but for” CHP facilities during first compliance period

# Facilities With and Without CHP: 1<sup>st</sup> Compliance Period

- “But For” CHP facility
  - Self-generation of steam and electricity
  - Excess electricity may be sold to grid
  - Covered entity with direct GHG costs
- If same facility had no CHP
  - Steam provided by boilers
  - Electricity purchased from the grid
  - On-site emissions < 25,000
  - No direct GHG costs

# Facilities With and Without CHP: 2<sup>nd</sup> Compliance Period

- Natural gas distributors pass through carbon cost in natural gas prices
- “But For CHP” facilities face greenhouse gas costs as a direct compliance obligation
- Facilities below threshold face indirect greenhouse gas cost in natural gas, as well as electricity from grid
- Facilities above and below threshold face similar costs
- Cap-and-Trade improves incentive for efficient CHP
  - Reduced fuel costs and reduced GHG costs



# How are “But For” CHP Facilities Defined?

- Current staff thinking is that “But for” facilities must meet two criteria:
  - Steam emissions alone do not exceed the threshold
  - Electricity emissions alone do not exceed the threshold

# Proposed Treatment of “But For” CHP

- Exempt steam emissions for “but for” CHP facilities during first compliance period ONLY
  - With exemption of steam emissions, “but for” facilities fall below the threshold and are not covered entities
- ARB retires equivalent allowances
- Adjustment would be made if facility was previously awarded an industrial allowance allocation and now seeks “but for” status

# Proposed Methodology for “But For” CHP Exemption

- Current staff thinking is that a facility would need to apply to ARB to be classified as a “But For” facility
  - Provide data on fuel usage, useful thermal output, and electricity production to support application
- Steam emissions =  $0.06244 * \text{MMBtu steam output}$
- Electricity emissions = Total emissions – Steam emissions
- If each result < 25,000, facility would qualify for “But For” exemption

# “But For” CHP Exemption: Questions and Comments

# Legacy Contracts

- A contract entered into before AB 32
- Does not allow the pass through of the cost of GHG compliance down to the purchaser(s), due to provisions in the contract.
- The Initial Statement of Reasons (ISOR) acknowledged staff's intent for parties to renegotiate, and ARB's continuing evaluation of the issue.
- September Board Resolution, 12-33

# Background

- ARB staff worked with industry to determine potential legacy contracts
- Some contracts have an Investor Owned Utility (IOU) as the counterparty and were referred to the CPUC process
- Staff has been meeting and discussing this issue with all parties to the contracts to encourage renegotiation
- ARB preferred renegotiation

# Staff Proposal

- Continue renegotiation discussions
- For those unable to renegotiate, ARB proposes to allocate allowances ONLY for the portion of emissions where GHG costs cannot reasonably be passed through to the purchaser
  - Vintage year 2015 allowances for 2013 and 2014 legacy contract emissions
- If selling to multiple entities, ARB will only consider the portion of electricity and steam emissions attributable to the legacy contract

# Other Considerations

- Cap-and-Trade Program designed to encourage emissions reductions
- Could emissions be captured at the natural gas supplier in the second and third compliance periods?
- Can generators recover costs based on increases in natural gas prices?



# Proposed Eligibility Criteria

- Contract entered into before AB 32
- Contract remains in place and has not been renegotiated
- Eligibility ceases when contract expires, is renegotiated, or the ownership of the facility is transferred or sold
- Submit annual attestation attesting GHG costs under legacy contract not able to be passed down.

# Basic Formula

$$A = \text{MTCO}_2 e_{\text{Elec, legacy}} + \text{MTCO}_2 e_{\text{Steam, legacy}}$$

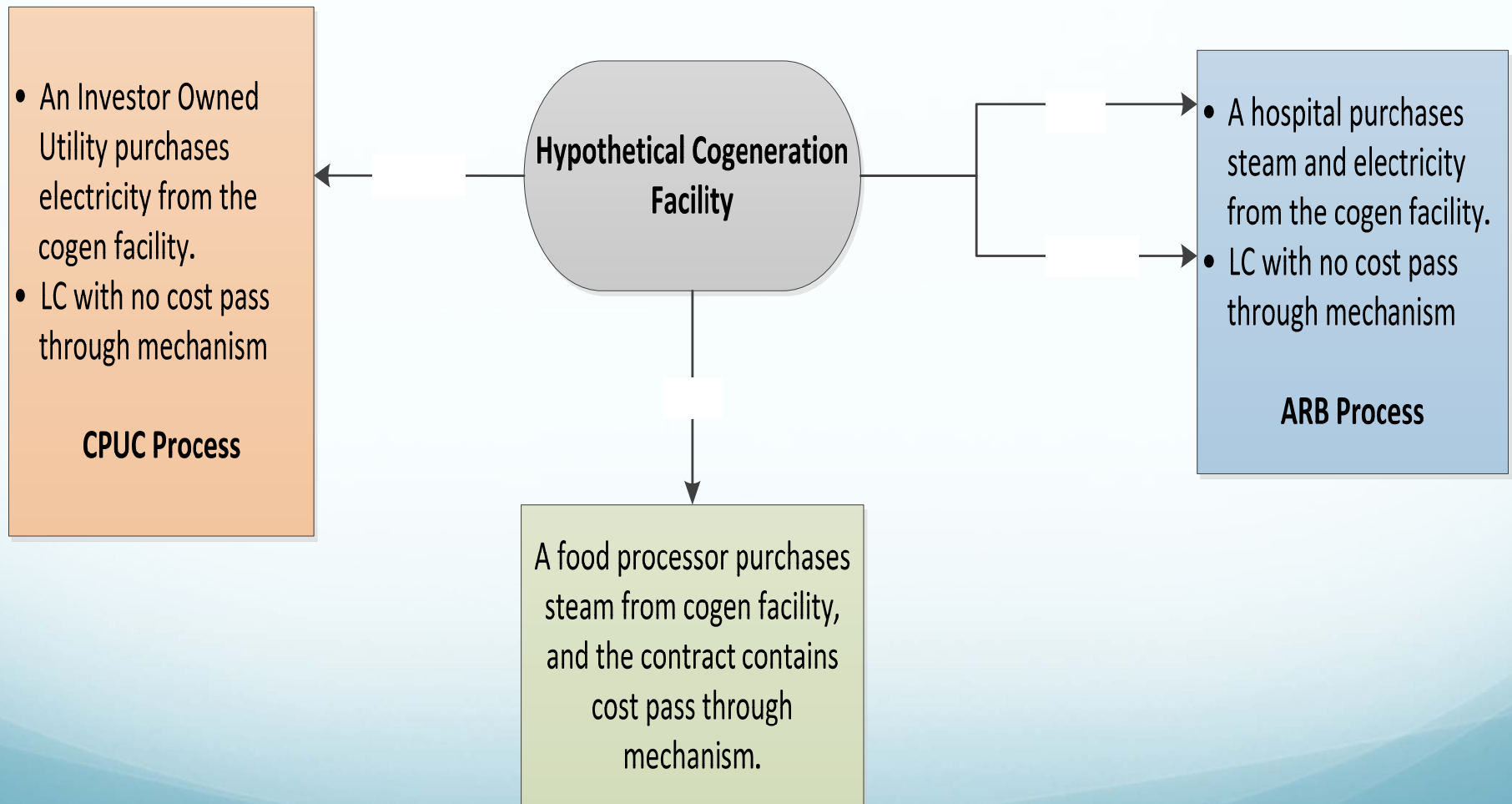
Where:

A = Allowances allocated

$\text{MTCO}_2 e_{\text{Elec, legacy}}$  = emissions associated with electricity sold without cost pass through

$\text{MTCO}_2 e_{\text{Steam, legacy}}$  = emissions associated with steam sold without cost pass through

# Example



# Option One

- Option one thinking is to allocate allowances using steam and electricity efficiency benchmarks applied to the legacy contract related emissions
- Potential issue: Efficiency benchmark factor could result in an over-allocation to the most efficient generators
  - Staff thinking is to limit allocation amount to legacy contract portion of emissions obligation

# Proposed Option One Calculation

$$A_t = (O_{\text{steam, legacy}} * B_s + O_{\text{elec, legacy}} * B_e) * c_t$$

“ $A_t$ ” is the number of allowances allocated to the legacy contract generator from budget year “t”

“ $O_{\text{steam, legacy}}$ ” is the steam output in MMBtu, sold in a legacy contract without the ability to pass through costs

“ $O_{\text{elec, legacy}}$ ” is the electricity output in MWh, sold in a legacy contract without the ability to pass through costs

“ $c_t$ ” is the cap adjustment factor for budget year “t”

# Option One: Factors and Considerations

- Allowances would decline by the cap decline factor ( $c_t$ )
- Staff recommend to use current efficiency benchmarks already in regulation:
  - $B_s$  = Steam efficiency benchmark 0.06244 MTCO<sub>2</sub>e/MMBtu
  - $B_e$  = Electricity efficiency benchmark 0.431 MTCO<sub>2</sub>e/MWh
- Staff thinking is to limit allocation amount to actual emissions attributable to the legacy contract

# Option Two

- Staff thinking for option two is to allocate allowances using historical baselines for fuel used, and electricity and steam produced
- This method will reward plants that have historically produced more electricity/steam
  - Could have an effect on amount of steam/electricity produced
- Staff thinking is to limit allocation amount to actual emissions attributable to the legacy contract

# Option Two Calculation

$$A_t = ((F_{Consumed} * B_{Fuel}) - (e_{Sold,c} * B_{Elec}) - (S_{Sold,c} * B_{Steam})) * C_t$$

“ $A_t$ ” is the number of allowances directly allocated from budget year “t.”

“ $F_{Consumed}$ ” is the historical baseline energy produced due to fuel combustion at a given facility, measured in MMBtu.

“ $B_{Fuel}$ ” is the emissions conversion per unit of energy from fuel combustion,

“ $e_{Sold,c}$ ” is the historical baseline of electricity sold or provided for off-site use that includes a carbon cost (is covered/reimbursed)

“ $S_{Sold,c}$ ” is the historical baseline of steam sold or provided for off-site use that includes a carbon cost (is covered/reimbursed)



# Option Two: Factors and Considerations

- Allowances would decline by the cap decline factor ( $c_t$ )
- Staff propose to use current efficiency benchmarks already in regulation:
  - $B_{\text{fuel}} = 0.05307 \text{ MTCO}_2\text{e/MMBtu}$
  - $B_s = \text{Steam efficiency benchmark } 0.06244 \text{ MTCO}_2\text{e/MMBtu}$
  - $B_e = \text{Electricity efficiency benchmark } 0.431 \text{ MTCO}_2\text{e/MWh}$
- Current staff thinking is to limit allocation amount to actual emissions attributable to the legacy contract

# Option Three: Proportional Attribution of Emissions

- Staff thinking for option three is to allocate steam and electricity emissions in proportion to MWh of electricity or MMBtus of steam
- Example:
  - Facility emits 150,000 MTCO<sub>2</sub>e
  - 50,000 MTCO<sub>2</sub>e from steam calculated using benchmark
  - Remaining emissions due to electricity production
  - 200 MWh of electricity generated: 150 MWh to PG&E, and 50 MWh to food processor under a legacy contract
  - Allowances to be allocated is equal to 25% of the electricity emissions.

# Comparison of Allocation Options

- Option One
  - May over allocate to efficient plants,
    - Would be limited if the allowance allocation limited to the portion of emissions attributable to the legacy contract(s)
  - Allows true-up to actual production
- Option Two:
  - Based on actual historical emissions
  - May under-allocate to plants that improve efficiency
  - Could impact future steam/electricity production
  - No true-up

# Comparison of Allocation Options (cont.)

- Option Three
  - Simple calculation
  - May not incentivize plant efficiency
  - Closer to facility specific electricity emission factor

# Additional Considerations

- Current staff thinking is that entities must apply and submit contracts for ARB to determine if eligible
- If customer of non-reimbursed steam or electricity is receiving an industrial allocation, an adjustment would be made to the customer's allocation during the true-up

# Questions

- Are there other considerations (pros/cons) to the options?
- Any comments of preference for the staff proposal or alternate options?
- Are the proposed benchmarks appropriate?
- Should peaker plants be addressed with a different methodology?
- Are there other eligibility criteria that should be considered?
- Should staff consider the allocation of allowances to legacy contracts other than electricity and steam generation (assuming same criteria/provisions)?

# Contact Information

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