



Methods of Allocating Allowances to the Electric Sector within a Regional Market-Based Mechanism

Collins Sprague

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Definitions

- **Source of confusion:** What is “load-based”?
 - Accounting of Electric Sector Emissions – “Consumption-based”
 - Designating a Point of Regulation – “Load-serving entity”
 - Basis for Allocating Allowances – “Load-based”
- **Leakage-** One state regulates greenhouse gas emission sources and another that doesn’t regulate emissions is the host of emitting generation sources that supply the regulated state.
- **Contract shuffling** – An out-of state entity sells “clean power” into a regulated state and “dirty power” into unregulated ones.
- **Preference Customer** – A utility that may request that its energy and capacity needs be fully supplied by the Bonneville Power Administration. They may be “full-requirements” and “partial requirements” customers.

Electric Sector Components

Washington has more than 60 electric utilities!

1. Political Sub-Divisions of the State

- Public utility districts, municipalities, irrigation districts, water districts and port districts.
- Most do not own generation resources.

2. Non-profit corporations

- Cooperatives and mutual associations.
- None presently own operating generation resources.

3. Investor-owned

- Publicly-held and private ownership.
- All own generation resources.

Electric Sector Components

4. Washington Utilities and Transportation Commission (WUTC)
 - Regulates the retail electric rates of the investor-owned utilities.

5. Energy Northwest
 - A joint operating agency with 17 PUD and 3 municipal members.
 - Owns nuclear, solar and wind generation. Output of the Columbia Generating Station is sold to BPA and marketed to all BPA customers.

6. Non-Utility Generators (“Independent Power Producers”)
 - Generation owned by parties other than utilities (i.e. Centralia Steam Plant, Chehalis Generating Station, Fredrickson Power, etc.)
 - Sell power in the wholesale market subject to federal, not state, regulation.

Electric Sector Components

7. Western Electricity Coordinating Council (WECC)

- Responsible for coordinating and promoting electric system reliability.
- Region covers all or part of 14 western states, British Columbia, Alberta, and Northern Baja California.

8. The Bonneville Power Administration (BPA)

- Markets power from 31 hydroelectric projects and the Columbia Generating Station (nuclear plant).
 - Served 44% of WA's utility loads in 2006 (*Source: WSU Energy*)
 - Owns nearly 75% of all transmission facilities in the region.
 - Power it sells to “preference customers” includes emitting sources. The amount of emitting resources in the power supply mix of these utilities ranges from less than 0.2% of Northern Lights' supply to nearly 10% of Grant PUD's. (*Source: CTED Fuel Mix Disclosure Report for 2007.*)

Electric Sector Components

9. Federal Energy Regulatory Commission (FERC)

- Under the Federal Power Act, FERC regulates the terms and conditions under which private utilities and energy marketers can sell into the wholesale electricity markets
- Regulates the operation of private utility transmission assets to promote competitive markets.

Washington in a Regional Context

- Washington exports power from multiple sources.
 - BPA sells power from federal facilities and the Columbia Generating Station to utilities throughout the Pacific Northwest.
 - Mid-Columbia PUDs have long-term contracts with investor-owned utilities in Oregon.
 - During the spring run-off, BPA, public and private utilities sell surplus hydro power into the southwestern markets.
 - Non-utility generators sell fossil-fueled power into the western market.
- Washington imports power to serve local utility loads.
 - Puget Sound Energy, PacifiCorp, Avista Utilities and Seattle City Light have generation resources located outside of Washington.
 - During the winter, power is imported from the southwestern markets.

Cap and Trade Recap

- Government sets an overall cap on emissions.
- The government issues for free or auctions allowances.
 - An “allowance” is a tradable permit to emit a certain amount, usually denominated as one unit/ton of emission.
 - The total number of allowances is equal to the emissions cap.
- The cap on emissions is lowered over time.
- Regulated entities must surrender an amount of allowances equal to their emissions covering a prescribed time frame (“compliance period”).

System Elements

A regional cap and trade system including the electricity sector will involve a combination of at least these three elements:

1. An **accounting method for sector emissions** based on electricity “consumption” or “production”;
2. Designation of a **point of regulation** to “load-serving entities,” emission or generation sources, or the “first-seller” into the state market; and
3. An **allocation of allowances** based on retail load, generation output, historic emissions, or other less common approaches.

Accounting for Sector Emissions

The method of accounting for emissions will affect the amount of reductions required and can influence system design.

- Consumption-based accounting captures emissions from the use of electricity in the state, including in-state and imported sources.
 - CO₂ emissions from consumption in WA are 30% higher than from power produced here. (*Source: GHG Inventory and Reference Case Projections, 1990-2020; July 2007*).
- Production-based accounting quantifies emissions from in-state sources. Compared to consumption-based accounting it:
 - Increases emission baselines and reduction obligations for net-exporters of emitting power (i.e. AZ, NM, UT).
 - Decreases emission baselines and reduction obligations for jurisdictions with low emitting power sources (i.e., CA, WA, BC, MB) and importers of fossil-fueled power (i.e. CA, WA, OR).

Designating a Point of Regulation

Regulated entities are responsible for having allowances to cover emissions and ultimately to make emission reductions.

1. Source-based – Applies regulation to in-state resources owned by utilities and non-utility generators (out-of-state sources cannot be directly regulated).
2. Load-serving entities – Regulation limits the amount utilities and retail marketers can emit from all generation sources used to serve loads in the state.
3. First-Seller – Regulates in-state generation owned by utilities and non-utility generators as well as the “initial sellers of out-of-state power” into the state. When a utility buys power, the point of regulation is applied to the seller, not the utility.

Approaches to Allocating Allowances

1. Load-based – Allocates allowances based on retail load (megawatt-hours sold) of each utility (load-serving entity).
 - Complements “consumption-based” accounting.
 - The allowances “budget” would be based on total retail electric loads in the state, rather than emissions (83,425,200 MWhs in 2005).
2. Output-based – Allocates on the basis of megawatt-hours of energy produced by generation resources, regardless of fuel.
 - The allowances budget would be based on all generation produced.
3. Emissions-based – A conventional model that allocates allowances based on volume of emissions from sources.
 - The allowances budget would be based on source emissions (13.7 MMtCO₂e for in-state resources, or 18.9 MMtCO₂e for emissions associated from in-state electricity consumption).

Approaches to Allocating Allowances

4. Auction – A regulated entity must buy allowances.
 - Other approaches of allocation are unnecessary under a system that auctions 100% of allowances.

Summary Matrices

Accounting for Emissions

Production (May not be viable)	Consumption
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Designating Point of Regulation and Recipient of Allowances

Point of Regulation

		<u>Point of Regulation</u>		
		Source	Load-Serving Entity	First Seller
<u>Base of Allocation</u>	Emissions			
	Output			
	Load			

Design Considerations

1. The Western Climate Initiative (WCI) process will result in a decentralized system under which each member will adopt and administer its own regulatory program, and it could result in a proposal to create a regional coordinating organization.
2. If not every jurisdiction within the Western Electricity Coordinating Council area joins the regional system, WCI members may be importing power from unregulated sources.
3. Each WCI member may be inclined to regulate only “in-state” power sources. But that approach may be:
 - Legally untenable
 - Operationally deficient, and
 - Inequitable!

Legal Parameters

1. State law may “incidentally” impact interstate commerce, but it cannot impermissibly burden interstate commerce by discriminating against imported power.
2. State law cannot conflict with federal law, nor regulate entities beyond state jurisdiction. Might state regulation affect power sales made in interstate commerce in a manner that intrudes on the economic and reliability authorities exclusive to FERC?
3. States cannot regulate foreign governments (i.e., Powerex).
4. States cannot regulate federal agencies without Congressional consent. (Neither BPA, nor the U.S. Army Corps of Engineers or the U.S. Bureau of Reclamation should receive allowances for federal resources unless they can be regulated by the state.)

Operational Concerns

1. Need to regulate retail marketers.
 - Puget Sound Energy has transmission customers who buy power from the wholesale market and BPA serves a few industrial loads in the state.
 - WA law does not require certification of retail marketers.
2. Need to reduce opportunities for leakage and contract shuffling by legally capturing out-of-state sources.
3. Need to prevent leakage within WA and preventing utilities from using BPA as a conduit for buying emitting generation.
4. Need to treat imported power the same as in-state generation and not discriminate between generation owners.
5. Need to prevent market manipulation (such as during power supply deficits).

Analysis of Point of Regulation Options

1. Source-Based Regulation

Advantages

- Emissions-based regulation applied to emission sources is well understood (i.e., air quality programs, Acid Rain program, NO_x Budget program, EU ETS, etc.).
- In-state emissions from stationary sources can be quantified.

Disadvantages

- Regulations can't be applied directly to out-of-state sources.
- Does not prevent leakage or contract shuffling.

Analysis of Point of Regulation Options

2. Regulation of Load-Serving Entities

Advantages

- Regulates all utilities in the state.
- Indirectly captures BPA sources.
- Utilities are locally regulated.
- Directly influences resource decisions by utilities.

Disadvantages

- Denies wholesale marketers direct access to allowances if allocation is to load-serving entities (they must rely on utilities to have allowances).

Analysis of Point of Regulation Options

3. Regulation of First-Sellers

Advantages

- Marketers will receive allowances.
- May encourage marketers not to engage in leakage or contract shuffling.

Disadvantages

- Shifts regulation from certain utilities to BPA – but **states cannot regulate BPA as a first-seller selling to utilities!**
- Marketers may drive up the cost of allowances during periods when utility demand for power is high.

Analysis of Allocation Methodologies

1. Emissions

- The allowances budget would be based on sector emissions according to a baseline. (*Note that the baseline for the electric industry in our region will be affected by hydro conditions.*)
- Under “production-based” accounting, total allowances would be based on emissions from all in-state generation.
- “Consumption-based” accounting would cover emissions from all resources used to serve Washington loads.

Analysis of Allocation Methodologies

1. Emissions

Advantages

- Every electric utility in the state has emissions associated with their supply – but few actually own emitting sources in the state.

Disadvantages

- Quantifying emissions from unspecified sources will be a challenge – but that challenge exists with a voluntary regional system.
- May not accommodate new sources without increasing the amount of available allowances.
- Usually paired with source-based regulation, which raises concerns about discrimination against out-of-state sources.

Analysis of Allocation Methodologies

2. Output

- The allowances budget would be based on megawatt-hours of electricity produced by generation sources, regardless of fuel source.
- Under “production-based” accounting, total allowances would be based on the output of all in-state generation – but this approach should exclude federal resources that aren’t regulated by the state.
- “Consumption-based” accounting would cover the output of all facilities, except that of resources marketed by the federal government, used to serve Washington loads, including out-of-state resources.

Analysis of Allocation Methodologies

2. Output

Advantages

- Rewards local utilities for having cleaner energy sources and for previous conservation efforts.
- WA will benefit from wealth transfer, because it will be a net-seller of allowances to other jurisdictions.
- Proceeds from the sale of allowances can be put to public purposes as determined by law (i.e., invest in renewable resources and energy efficiency measures).
- May indirectly accommodate new sources, if load-serving entities receive allowances in an amount sufficient to cover them.

Analysis of Allocation Methodologies

2. Output

Disadvantages

- Many utilities in the state would not receive any allowances at all (this assumes BPA marketed power is excluded from regulation), while others will enjoy a “windfall”.
- Usually paired with source-based regulation, which raises concerns about discrimination against out-of-state sources.
- How should allowances be allocated to the Columbia Generating Station, if at all?
- Washington must justify having more allowances than it needs to other jurisdictions.

Analysis of Allocation Methodologies

3. Load-Based (to Load-Serving Entities)

Advantages

- All utilities in the state would receive allowances in an amount proportionate to its share of total retail sales.
- Utilities will enjoy having allowances in excess of the amount that may be necessary to comply with regulation of emissions.
- Rewards utilities for clean energy sources and conservation efforts.
- Indirectly covers in-state and out-of-state resources owned by utilities and non-utility generation serving local loads.
- The state will benefit from wealth transfer as a net-seller of allowances.
- Proceeds from the sale of allowances can be put to public purposes
- Surplus allowances may indirectly accommodate new sources.

Analysis of Allocation Methodologies

3. Load-Based (to Load-Serving Entities)

Disadvantages

- Wholesale marketers must depend on utilities having enough allowances to purchase fossil-fueled generation.
- Washington must justify having more allowances than it needs to other jurisdictions

Analysis of Allocation Methodologies

4. Auction

Advantages

- Treats new sources equitably.
- Establishes a market price early.
- Provide money upfront for certain governmental purposes.
- Prevents a “windfall” of allowances.
- May quickly spur behavioral change.

Analysis of Allocation Methodologies

4. Auction

Disadvantages

- Produces early and immediate economic impact (i.e., electric rate increases).
- May encourage certain manufacturers to close facilities and sell allowances if the market price for allowances is high.
- Early economic dislocation may undermine public support for climate change policies.

Pairing Design Elements

1. The point of regulation and recipient of allowances can differ.

Example: Load-serving entities could be responsible for complying with regulations but allowances may be allocated to sources.

2. The basis for establishing an allowances budget should be the same as the basis for allocation!

Example: The number of allowances is determined by the amount of sector emissions (an “emissions-based” budget), but allowances are allocated not on the basis of emissions but on load or output.

- This pairing of elements would benefit low-emitting sources (utilities) at the expense of emitting sources (utilities) and result in a transference of wealth within the state’s electric industry.

Conclusion

The best way to regulate the electric sector in Washington is under a cap and trade system that:

- Accounts for emissions based on consumption.
- Applies the point of regulation to load-serving entities.
- Allocates allowances in a manner that treats imported power that is consumed in the state the same as in-state generation. The basis of that allocation could be:
 - Retail load of load-serving entities; or
 - Emissions from in-state and out-of-state resources owned and contracted by a load-serving entity to serve Washington loads; or
 - Output of in-state and out-of-state generation that is owned and contracted by load-serving entities to serve Washington loads.