



Designing a Market-Based System to Regulate the Electric Sector in Washington

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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 government-owned or cooperative utility that may request that its energy and capacity needs be fully supplied by the Bonneville Power Administration. They may be “full-requirements” or “partial requirements” customers.

Overview

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 local utilities and retail power marketers.
- 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 (if allowances aren't allocated to exported power, this approach may merely replicate allocation based on retail load).

Electric Sector Composite

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. Private 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 in varying amounts.
4. Energy Northwest (A government joint operating agency).
 - Owns nuclear, solar and wind generation.
 - Output of the Columbia Generating Station (nuclear plant) is sold to BPA and marketed to all BPA customers.

Electric Sector Composite

5. Non-Utility Generators (“Independent Power Producers”)

- Generation owned by private 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.

6. The Bonneville Power Administration (BPA)

- Markets power from 31 hydroelectric projects and the Columbia Generating Station.
 - 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.
 - As a federal agency, it cannot be regulated by any state or regional compact without Congressional approval! (Premise: Entities that are not regulated should not receive allowances.)

Regional Context

- Washington exports power from multiple sources.
 - BPA sells power from federal facilities in the region 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* hydroelectricity into the southwestern markets.
 - Non-utility generators sell fossil-fueled power into the western markets.
- 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.

Basic System Elements

A regional 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 power 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 resources cannot be directly regulated by the state).
2. Load-serving entities – Regulation limits the amount of emissions from generation used by utilities and retail marketers 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.

Allocating Allowances

1. Load-based – Allocates allowances based on retail load (megawatt-hours sold) of each utility.
 - An 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.
 - An allowances budget would be based on all generation produced.
3. Emissions-based – This conventional model allocates allowances based on the volume of emissions from sources.
 - An 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).
4. Auction – A regulated entity must buy its allowances.
 - Other approaches of allocation are unnecessary under a system that auctions 100% of allowances.

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 *emissions from electric generation*, but allowances are not allocated on the basis of emissions (i.e., *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.

Design Considerations

1. Prevent leakage and reduce contract shuffling by:
 - a. Regulating retail marketers the same as utilities;
 - b. Discouraging utilities from using BPA as a conduit for buying fossil-fueled generation; and
 - c. Indirectly regulating imported power.
2. Treat imported power the same as in-state generation.
3. Treat generation owned by utilities and non-utility generations as similarly as possible.
4. Minimize manipulation of the allowances market.

Regulation of Load-Serving Entities

Advantages

- Regulates all utilities in the state.
 - Every utility has emitting sources in its power supply portfolio. (BPA's "preference customers" have emitting resources that range from 0.2% of Northern Lights' supply to nearly 10% of Grant PUD's.) *Source: CTED Fuel Mix Disclosure Report for 2007.*
- Directly affects resource decisions by utilities, including purchases from BPA, without attempting to regulate BPA.
- Treats all resources acquired by load-serving entities the same, regardless of ownership or physical location.

Disadvantages

- Denies wholesale marketers a direct allocation of allowances if the allocation is load-based.

Allocation Methodologies

In selecting a method of allocation of allowances, the following factors should be considered:

1. Allowances should be allocated for both in-state and imported power consumed in the state.
2. Different approaches will have different “winners” and “losers” within the state, if not the WCI region.
3. The method of allocation should complement how other jurisdictions decide to allocate allowances.

Allocation Methodologies

Among the advantages of each allocation methodology are:

Load-based

1. Rewards “clean” heritage.
2. Wealth transfer to WA.
3. Funds for public purposes.
4. Equitable for all utilities.
5. Shield against manipulation.

Emissions-based

1. Equitable for emitters.
2. Stimulates change.

Output-based

1. Rewards “clean” heritage.
2. Wealth transfer to WA.
3. Funds for public purposes.

Auction

1. Equitable for new sources.
2. Stimulates change.
3. Funds for public purposes.

Allocation Methodologies

Among the disadvantages of each allocation methodology are:

Load-based

1. No allowances directly to wholesale marketers.
2. Are “windfalls” appropriate?

Emissions-based

1. Imported power problem if . . .
2. Impact on new sources.

Output-based

1. Mostly benefits generators.
2. Imported power problem if . . .
3. Are “windfalls” appropriate?

Auction

1. No “windfall”.
2. Immediate economic impacts.

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