

Greenhouse Gases Emissions Performance Standard for Baseload Power Plants

April 2008
Public Hearing on Proposed
Rule



**Energy Facility Site
Evaluation Council**



ESSB 6001

2007 Climate Change Legislation

- Codified as Chapter 80.80 RCW – Greenhouse Gases Emissions
- Implemented Through Amendments To:
 - Ecology
 - Chapter 173-407 WAC
 - Chapter 173-218 WAC
 - Energy Facility Site Evaluation Council (EFSEC)
 - Chapter 463-85 WAC



Rule Development Process

- Advisory Committee
- Rule Webpage
- Email list serve
- Opportunity for Public Comments
 - March 19 – Draft rule published
 - April 8 and 10 – Public hearings
 - April 18 – End of public comment period
- Rule Adoption
 - June 2008

Refer to back of agenda for the rule website and information on how to provide written comments



WAC 173-407 Carbon Dioxide Mitigation Program, Greenhouse Gases Emissions Performance Standard and Sequestration Plans and Programs for Thermal Electric Generating Facilities

- **What** is the Greenhouse Gases (GHGs) Emissions Performance Standard (EPS)?
- **What** is measured?
- **When** is the rule effective?
- **Who** is subject to the EPS?
- **How** are emissions calculated?
- **How** to comply?



What is the GHG EPS?

- 1,100 Pounds of GHGs per MWh
 - Represents GHG emissions from combined cycle turbine gas plants, considered the lowest GHG emitters
- Updated every 5 years based on CTED survey of CCT natural gas plants

What is regulated?

- Regulated GHG emissions:
 - Carbon dioxide emitted + nitrous oxide emitted + methane emitted
- Sources of emissions:
 - Main plant exhaust stack
 - Bypass stacks or flares



When is the law effective ?

- Starting **July 1, 2008**
 - New long-term financial commitments for baseload power
 - New baseload power plants in Washington

Who does it effect?

- **Baseload generation:**
 - Power from plants designed and intended to produce electricity at $\geq 60\%$ of their capacity on an annual basis
- **LT Financial Commitments:**
 - New ownership interest in baseload generation
 - Upgrade to a baseload power plant
 - Power contracts > 5 years term
- **Washington power plants:**
 - Plants starting operations after June 30, 2008 must comply

Who is exempt from the EPS?

○ **Washington power plants:**

- Baseload generation plants operating on June 30, 2008, until they enter into new long-term financial commitments
- Cogeneration plants operating on June 30, 2008 until they are upgraded or have an ownership change
- Power plants utilizing a renewable fuel for at least 90% of total annual heat input

How are emissions calculated?

- Data required:
 - Fuel/fuel feedstocks
 - Electrical output in MWh
 - Regulated GHG emission factors or continuous emission monitoring data
- Lbs of Regulated GHG emissions per MWh of Electricity Produced in Prior Year =

$$\frac{\text{Regulated GHG emissions}}{\text{Total MWh Produced}}$$



How to comply with the EPS?

- Fuels and power plant designs that meet the EPS
- Add-on or process modifications to reduce GHG emissions
- Sequestration of captured CO₂ emissions



Sequestration of CO₂

- Other/Non-geologic types of sequestration
 - WAC 173-407-220
- Geologic Sequestration
 - Ch. 173-218 WAC



WAC 173-218 Underground Injection Control Program - Geologic Sequestration Rule

- The injection of carbon dioxide, usually from human activities like burning coal or oil, into subsurface geologic formations to prevent its release into the atmosphere.



Geologic Sequestration

- **Primary Goal:**

- Allow Geologic Sequestration Projects that protect public health and the environment

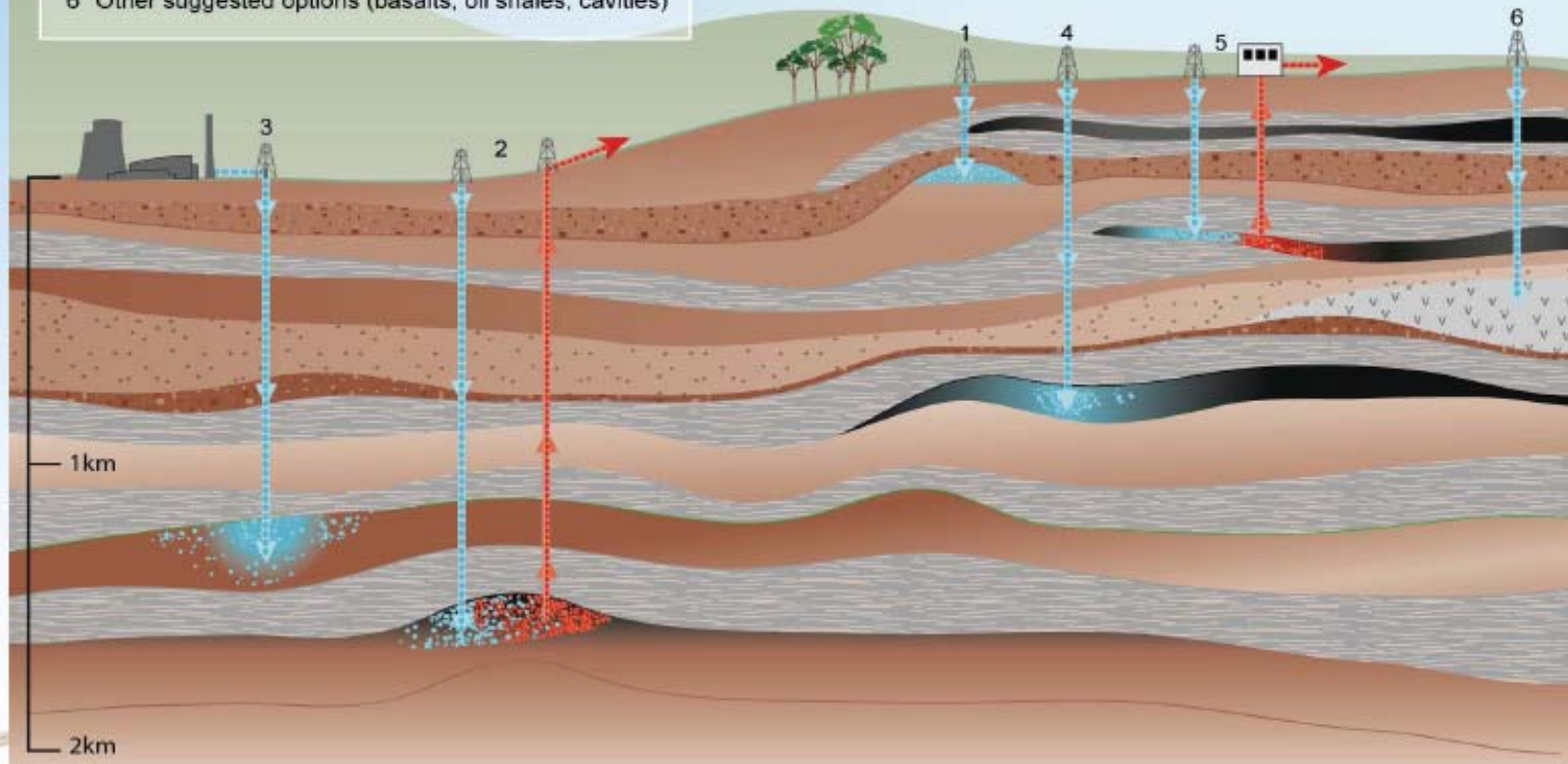
- **Proposed Revisions Include:**

- Permit requirements for injecting carbon dioxide in Class V wells for permanent geologic sequestration.
- Set clear standards (e.g. well construction standards)
- Ensure proper monitoring and reporting.
- Establish closure and post-closure requirements.

Options for Geological Storage

Geological Storage Options for CO₂

- 1 Depleted oil and gas reservoirs
- 2 Use of CO₂ in enhanced oil recovery
- 3 Deep unused saline water-saturated reservoir rocks
- 4 Deep unmineable coal seams
- 5 Use of CO₂ in enhanced coal bed methane recovery
- 6 Other suggested options (basalts, oil shales, cavities)





EFSEC

WAC 463-85

- **Emission Performance Standard**
 - Similar to Ecology's EPS rule
 - 350 megawatts or greater
- **No underground injection rules**
 - Will rely on WAC 173-218



EFSEC

WAC 463-80

○ **Carbon Dioxide Mitigation**

- Implements RCW 80.70
- 350 megawatts or greater
- 20% CO₂ mitigation

- **Similar to WAC 173-407**
 - Same CO₂ calculation process
 - Same options for mitigation
 - Payment to Independent Qualified Organization
 - Direct purchase of CO₂ credits
 - Applicant controlled mitigation project

○ **Independent Qualified Organizations**

- Selection process
- Use of funds
- Oversight
- Reports

How to Comment – Ecology Rules

- Public Hearings
- Written Comments:
 - Deadline – 5:00 pm April 18, 2008
 - Ecology:
 - email: npri461@ecy.wa.gov
 - Fax: (360) 407-7534
 - Mail: Nancy Pritchett, Air Quality Program
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

How to Comment – EFSEC Rules

- Public Hearings
- Written Comments:
 - Deadline – 5:00 pm April 18, 2008
 - EFSEC:
 - email: allenf@cted.wa.gov
 - Fax: (360) 956-2158
 - Mail: Allen Fiksdal
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P.O. Box 43172
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Questions?
