



## Scope of Work

### **Regional Strategic Health Impact Assessment (HIA): Potential Impacts Related to Multiple Proposed Coal Export Terminals in Washington and Oregon**

**Proposed HIA:** To provide a sound evidence base for decisions related to development of regional coal export operations, we will conduct a strategic health impact assessment designed to comprehensively examine the cumulative health impacts—favorable and unfavorable—of coal transportation to the multiple proposed coal export terminals in Washington and Oregon; and develop recommendations for mitigating identified negative impacts.

The HIA will be *comprehensive* by examining the totality of related activity, including coal transportation from mine to port, and potential impacts on climate change from burning coal shipped to Asian markets. The HIA will be *cumulative* in that it will add up the incremental impacts of each potential port, enabling a more accurate understanding of total potential impacts.

The HIA will be led by Washington State University and will be collaborative with experts at the University of Washington and Oregon Public Health Institute. The principal team members have combined experience in health impact assessment project management, stakeholder engagement, transportation and land use planning policies and practices, energy economics, environmental issues, and epidemiology. The team efforts will leverage resources and expertise from a network of potential collaborators, including the Oregon HIA Network and representatives of local and State health, transportation, and environmental quality agencies in Washington and Oregon. The team will engage faculty at their institutions with renowned specialty expertise including air pollution measurement and health effects, noise characterization and health effects, urban design and planning, and transportation engineering.

**What is health impact assessment?** The National Research Council definition of HIA is

...a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of the effects within the population. HIA provides recommendations on monitoring and managing those effects.<sup>1</sup>

**Background:** Communities throughout the Pacific Northwest are considering proposals to build coal export terminals. These facilities will be part of an extensive infrastructure to transport coal by rail and barge from the Powder River Basin in Montana and Wyoming to ports in northwestern states, for shipment to Asian markets. Current coal-terminal permit applications include the Gateway Pacific Terminal north of Bellingham, Washington; the Millennium Bulk Terminal in Longview, Washington; and the Morrow Pacific Terminal at the Port of Morrow in Boardman, Oregon. Each terminal is required to undergo environmental assessment to comply with the National Environmental Protection Act (NEPA). However,

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<sup>1</sup>. Committee on Health Impact Assessment, National Research Council. *Improving Health in the United States: The Role of Health Impact Assessment*. Wash, DC: National Academies Press; 2011.



there is no clear mechanism to assess and mitigate the *cumulative* impacts of multiple regional terminals and associated coal transport activities in the region, including impacts on communities that lay along the coal rail transport route.

**Benefits and impacts:** This proposed strategic Health Impact Assessment (HIA) will address the potential health impacts, both favorable and unfavorable, that may result from activities related to coal exports in the Pacific Northwest. The coal terminals could bring economic benefits to the region—new employment, tax revenues, and investor profits—at a time when economic benefits are sorely needed. These benefits would undoubtedly have some positive health impacts for some portion of the regional population. The terminals and associated transportation could also have negative impacts on human health and quality of life both in coal-terminal and coal-train communities, with some communities realizing net negative benefits.

Some potential *direct* consequences with adverse health impacts include:

- air pollution caused by diesel emissions
- air and water pollution from coal dust
- noise from trains and crossing signals, day and night
- street traffic congestion resulting in vehicle and pedestrian hazards, stressed and divided communities, delays in emergency response, and restricted trucking
- a greater probability of train derailment from straining a near-capacity system
- disruption/displacement of usual and customary Tribal marine fishing areas

Other consequences could pose substantial *indirect* risks for health and quality of life. Local communities might be compelled to shift expenditures from health and human services and other health promoting public expenditures to absorb costs of accommodating rail traffic (for example, building vehicle and pedestrian overpasses). The increased emissions, noise and traffic congestion could reduce nearby property values, disrupt the local business environment, decrease tourism, and interfere with other rail or truck transport, resulting in losses of quality of life, personal income, tax base, and government revenues. Thinking globally, greenhouse gas emissions from combustion of exported coal by inefficient furnaces in rapidly industrializing countries could substantially contribute to climate change.

# Coal Terminal Development, Transportation Activity, and Health Determinants

**Regional impacts**  
 HIA will focus on:

- Coal transportation in Oregon and Washington

**Coal terminals developed in Oregon and Washington**

**Global impacts**  
 HIA will focus on:

- Coal transportation, from mines to Asia
- Coal combustion in Asia

**Export terminal operations**

**Transport traffic**

- Train
- Barge
- Truck
- Ship

**Railroad infrastructure: planned improvements; maintenance and repair**

- Tracks
- Freight yards
- Crossings

**Transport noise**

- Train, vehicle noise
- Crossing signals

**Regional transport emissions**

- Coal dust
- Diesel exhaust: train, truck, ship
- Bunker fuel exhaust: ship

**Global transport emissions**

- Greenhouse gases (CO2)

**Coal burning in Asia: global-scale emissions**

- Greenhouse gases (CO2)
- Metals

**Economic gains & losses**

- Employment
- Household income
- Business, including tourism
- Government
- Funds reallocated from other needs, e.g., health & services

**Road traffic changes**

- Commuting and commerce
- Emergency response time
- Vehicle, pedestrian safety
- Vehicle emissions
- Community cohesion

**Train traffic changes**

- Rail congestion
- Derailment risk

**Noise pollution**

**Air pollution**

- Coal dust
- Ambient pollutants (e.g., PM)

**Global climate change**

**Global-scale pollution**  
 (e.g., mercury)

**Regional impacts**

- Climate change
- Transported pollutants

**Impacts on health, well-being, and quality of life**  
 Who experiences favorable impacts? Who experiences unfavorable impacts?