

Affiliated Tribes of Northwest Indians  
 AirWorks, Inc.  
 Alaska Housing Finance Corporation  
 Alliance to Save Energy  
 Allumia  
 Alternative Energy Resources Organization  
 American Rivers  
 Backbone Campaign  
 Beneficial State Bank  
 BFA Energy  
 BlueGreen Alliance  
 Bonneville Environmental Foundation  
 Byrd Barr Place  
 City of Ashland  
 City of Seattle Office of Sustainability & Environment  
 CleanTech Alliance  
 Climate Smart Missoula  
 Climate Solutions  
 Coffman Engineers  
 Community Action Center of Whitman County  
 Community Action Partnership Assoc. of Idaho  
 Community Action Partnership of Oregon  
 Community Energy Project  
 Counterbalance Capital  
 Earth Ministry  
 Ecumenical Ministries of Oregon  
 eFormative Options  
 Elevate Energy  
 Energy350  
 Energy Trust of Oregon  
 Environment Oregon  
 Environment Washington  
 Forth  
 Global Ocean Health  
 Green Energy Institute at Lewis & Clark Law School  
 Grid Forward  
 Homes for Good  
 Home Performance Guild of Oregon  
 Human Resources Council, District XI  
 Idaho Clean Energy Association  
 Idaho Conservation League  
 Idaho Rivers United  
 League of Women Voters Idaho  
 League of Women Voters Oregon  
 League of Women Voters Washington  
 Montana Audubon  
 Montana Environmental Information Center  
 Montana Renewable Energy Association  
 Multnomah County Office of Sustainability  
 National Center for Appropriate Technology  
 National Grid  
 Natural Resources Defense Council  
 New Buildings Institute  
 Northern Plains Resource Council  
 Northwest EcoBuilding Guild  
 Northwest Energy Efficiency Council  
 NW Natural  
 OneEnergy Renewables  
 Opportunities Industrialization Center of WA  
 Opportunity Council  
 Oracle/Opower  
 Oregon Citizens' Utility Board  
 Oregon Energy Fund  
 Oregon Environmental Council  
 Oregon Physicians for Social Responsibility  
 Oregon Solar Energy Industries Association  
 Pacific Energy Innovation Association  
 Pacific NW Regional Council of Carpenters  
 Portland Energy Conservation, Inc.  
 Portland General Electric  
 Puget Sound Advocates for Retirement Action  
 Puget Sound Cooperative Credit Union  
 Renewable Hydrogen Alliance  
 Renewable Northwest  
 Save Our wild Salmon  
 Seattle City Light  
 Sierra Club  
 Sierra Club, Idaho Chapter  
 Sierra Club, Montana Chapter  
 Sierra Club, Washington Chapter  
 Small Business Utility Advocates  
 Snake River Alliance  
 Snohomish County PUD  
 Solar Installers of Washington  
 Solar Oregon  
 Solar Washington  
 South Central Community Action Partnership  
 Southeastern Idaho Community Action Agency  
 Spark Northwest  
 Spokane Neighborhood Action Partners  
 Sustainable Connections  
 The Climate Trust  
 The Energy Project  
 Transition Missoula  
 UCONS, LLC  
 Union of Concerned Scientists  
 United Steelworkers of America, District 12  
 Washington Environmental Council  
 Washington Physicians for Social Responsibility  
 Washington State Community Action Partnership  
 Washington State Department of Commerce  
 Washington State University Energy Program  
 YMCA Earth Service Corps  
 Zero Waste Vashon



**NW Energy Coalition**  
*for a clean and affordable energy future*

June 15, 2020

Richard Devlin, Chair  
 Northwest Power and Conservation Council  
 851 SW Sixth Avenue, Suite 1100  
 Portland, OR 97204

Dear Chair Devlin and Council members:

The NW Energy Coalition (NVEC) is pleased to write in support of the staff recommendation – with one exception as described below – for the assessment of upstream methane emissions for the 2021 Northwest Power Plan. We appreciate the review of the Natural Gas Advisory Committee and the work by staff member Steve Simmons to prepare a thorough and well documented methodology.

NVEC is committed to achieving the vision of a reliable, clean and affordable Northwest power system, and considers the work of the Council to have even more importance from this point onward in providing clear guidance for the rapid transformation needed to achieve our region’s climate, clean energy, reliability, economic and environmental protection goals.

Identifying and rapidly reducing greenhouse gas emissions attributable to the power sector is a crucial aspect of that effort. While the role of carbon dioxide (CO<sub>2</sub>) as the “control knob for the climate” with atmospheric and climate system effects for thousands of years is relatively well understood, methane (CH<sub>4</sub>) is another very important greenhouse gas with climate impact on relatively short time scales of up to 20 years. The primary locus of emissions for CO<sub>2</sub> is combustion – and indeed, natural gas, primarily composed of methane, creates substantial CO<sub>2</sub> on combustion, as already accounted for in the Council’s assessment and methods.

The key concern for methane, however, is emissions in the supply chain prior to combustion in natural gas power plants and otherwise. As staff’s report indicates, assessing upstream methane emissions is a complex undertaking, and considerable research is ongoing to acquire more observational data and develop more robust assessment methods.

Given the relevance and magnitude of methane emissions related to the Northwest electric power system, NWECC believes it is very important to take the initial steps outlined by staff to include upstream methane assessment in the 2021 Plan. We recommend that the Council:

- Take an evidence-based approach to upstream methane emissions, recognizing rapid advances being made in data acquisition, refinement and assessment, but also recognizing the remaining areas of uncertainty and data gaps.
- Focus on data and assessments most relevant for the primary supply basins for Northwest power system use, particularly northeast British Columbia, Alberta, and the Rockies.
- Also fully consider national assessments in providing guidance.
- Invite scientific experts in the field of methane emissions, atmospheric chemistry and climate science to provide views and advice to the Council on the complex data and assessment issues involved.
- Take a flexible and incremental approach to avoid significant under or overestimation of upstream methane emissions and to incorporate new relevant information on an ongoing basis.
- Include one or more elements in the Action Plan for the 2021 Plan to facilitate additional progress on this important topic.

NWECC also supports the efforts by environmental regulators and the natural gas industry to mitigate upstream methane emissions through improved monitoring, reporting, leak detection and response (LDAR) programs, regulatory compliance and other efforts. As verifiable evidence of those efforts develops, that should also be folded into the Council's analysis.

Turning to the specific approach recommended by staff for the 2021 Plan, the key metric is  $L_d$ , the aggregate upstream methane emissions rate. The staff methodology is appropriate overall, and we support the recommendation to adopt the EDF Low  $L_d$  value for upstream emissions for US sourced natural gas used by the Northwest power sector, primarily from the Rockies region.

The EDF managed research program, which has now been running for a decade, is supported across many relevant sectors, involves rigorous field research protocols and scientific review, assesses emissions from many US supply basins, especially the Rockies, and has resulted in numerous peer reviewed publications.

However, we do not support the staff's recommendation for Canadian natural gas sources based on provincially adopted  $L_d$  values. Because Canadian gas, primarily from northeast British Columbia but also various parts of Alberta, comprises about two-thirds of Northwest gas supply, this is an important issue to consider as the Council finalizes the 2021 Plan.

NWECC believes that while the provincial values for upstream emissions have been widely cited, they are based on earlier baseline assessments that have not been updated for many years.

However, quite a lot of new research is now available, and below we provide a capsule summary of several relevant publications:

- Atherton et al. (2017)<sup>1</sup> conducted an extensive field survey of gas and oil production areas in northeastern British Columbia, covering more than 1,600 well pads and processing facilities. They conclude: “Our calculated emission frequency values, combined with estimated and pre-established emission factors for wells and facilities, provided a CH<sub>4</sub> emission volume estimate of more than 111 800 ± 15 700 t per year for the BC portion of the Montney. This value exceeds the province-wide estimate provided by the government of BC even though the Montney only represents about 55 % of BC’s total natural gas production.”
- Wisen et al. (2020)<sup>2</sup> reviewed natural gas well leakage data from the British Columbia Oil and Gas Commission. They found that about 11% of over 21,000 wells reported leakage during their lifetime, twice the rate indicated from earlier research in Alberta, and highlighted that both BC and Alberta have almost no leakage reporting from abandoned or retired wells.
- Ravikumar et al. (2020)<sup>3</sup>, as part of a field study of leak detection and response (LDAR) efforts, reviewed emissions studies in both Alberta and British Columbia and likewise concluded: “Both ground-based and aerial-measurements in Alberta showed higher vented and total methane emissions compared to provincial regulatory estimates. Similarly, mobile measurements using truck-mounted sensor systems in British Columbia and Alberta have consistently shown that a majority of the emissions are dominated by a small number of high-emitting sites, often identified as ‘super-emitters.’”
- O’Connell et al. (2019)<sup>4</sup> surveyed 1,299 oil and gas well pads and 2,670 unique wells and facilities in Alberta, and found: “As a result of measured emissions being larger than those reported in government inventories, this study suggests government estimates of infrastructure affected by incoming regulations may be conservative. Comparing emission intensities with available Canadian-based research suggests good general agreement between studies, regardless of the measurement methodology used for detection and quantification.”

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<sup>1</sup> Atherton et al., 2017, “Mobile measurement of methane emissions from natural gas developments in northeastern British Columbia, Canada,” *Atmospheric Chemistry and Physics*, 17, 12405–12420, 2017, DOI: 10.5194/acp-17-12405-2017.

<sup>2</sup> Wisen et al., 2020, “A portrait of wellbore leakage in northeastern British Columbia, Canada,” *Proceedings of the National Academy of Sciences*, 117 (2) 913-922; DOI: 10.1073/pnas.1817929116

<sup>3</sup> Ravikumar et al., 2020, “Repeated leak detection and repair surveys reduce methane emissions over scale of years,” *Environmental Research Letters* 15 (2020) 034029, DOI: 10.1088/1748-9326/ab6ae1

<sup>4</sup> O’Connell et al., 2019, “Methane emissions from contrasting production regions within Alberta, Canada: Implications under incoming federal methane regulations. *Elementa* 7: 3. DOI: 10.1525/elementa.341

After our review of the literature, including the examples cited here, NWEC believes the Canadian  $L_d$  upstream emissions metric should be updated to a higher value reflecting the more recent research.

To summarize, the Canadian  $L_d$  value proposed by staff is a methane loss rate of 0.77%. In comparison, that is about two-fifths of the EPA rate of 1.82%, and less than one-third of the EDF Low rate of 2.47%. We conclude the Canadian value is out of date and implausibly low given the results of numerous peer-reviewed studies in British Columbia and Alberta.

We recommend that the Natural Gas Advisory Committee be reconvened later this year to review the upstream methane emissions rate for Canadian supply areas, including presentations from experts having direct experience with these issues. It may be appropriate as a starting point to consider the EDF Low rate and adjust from there.

NWEC again thanks Council staff and the NGAC for close attention to this important issue and urges the Council to move forward with the staff recommendation to include the assessment of upstream methane emissions for the 2021 Plan, with an upward adjustment for the Canadian emissions rate.

Sincerely,

A handwritten signature in black ink, appearing to read "Fred Heutte". The signature is written in a cursive, slightly slanted style.

Fred Heutte  
Senior Policy Associate  
NW Energy Coalition  
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