Appendix A: Additional resources concerning natural gas emissions, including GHGenies and GREET model links.

The PSCAA Lifecycle Assessment Calculations can be found on the "Current Permitting Projects" here: https://www.pscleanair.org/460/Current-Permitting-Projects

Document Location: The Final SEIS (and Appendices) can be accessed below. Hard copies of the FSEIS can be reviewed at the Agency office (office nours are 8am-4.30pm, Monday-Friddy). Hard copies of the FSEIS can also be reviewed at all open branches of the Tacoma Public Library and and The Center at Norpoint (4816 Nassau Ave NE, b) Tacoma. In addition, a limited number of complementary hardcopies or flash drives of the FSEIS will be made available from the Agency (while the supply tasts). Due to the size of the FSEIS, some appendices are only available electronically and can be downloaded at the link below. A limited number of flash drives containing the full document and appendices will be available to request at the Agency office.

Cover Letter and Notice of Availability of FSEIS

Final SEIS Tacoma LNG

ESEIS Appendix C4 Part 1

FSEIS Appendix C4 Part 2

LCA Calculations

GHGenius model downloads can be found here: https://ghgenius.ca/index.php

GREET model downloads can be found here: https://greet.es.anl.gov/

EPA Subpart W reporting forms can be found here: https://ccdsupport.com/confluence/display/help/Reporting+Form+Instructions

Subpart W Introduction

Onshore Production Facility Level Requirements (98.236(aa)(1))

Facility Overview (98.236(aa)(2-11)

Natural Gas Pneumatic Devices (98.236(b))

Natural Gas Driven Pneumatic Pumps (98.236(c))

Acid Gas Removal Units (98.236(d))

Dehydrators (98.236(e))

Well Venting for Liquids Unloading (98.236(f))

Oil and Gas Well Completions and Workovers with Hydraulic Fracturing (98.236(g))

Gas Well Completions and Workovers without Hydraulic Fracturing (98.2326(h))

Blowdown Vent Stacks (98.236(i))

Atmospheric Storage Tanks (98.236(j))

Transmission Storage Tanks (98.236(k))

Well Testing (98.236(I))

Associated Gas Venting and Flaring (98.236(m))

Flare Stacks (98.236(n))

Centrifugal Compressors (98.236(o))

Reciprocating Compressors (98.236(p))

Equipment Leaks (98.236(q,r))

Offshore Petroleum and Natural Gas Production (98.236(s))

Enhanced Oil Recovery Injection Pump Blowdown (98.236(w))

Enhanced Oil Recovery Hydrocarbon Liquids (98.236(x))

<u>Combustion Equipment at Onshore Petroleum and Natural Gas Production, Onshore Petroleum and Natural Gas</u> <u>Gathering and Boosting, and Natural Gas Distribution Facilities (98.236(z))</u> Appendix B: Email dated June 2, 2019 from TAG member concerning clarification of an action item and PSE response dated June 5, 2019.

From: Virginia Lohr <lohr@turbonet.com>

Sent: Sunday, June 02, 2019 8:37 PM

To: Netik, Irena <irena.netik@pse.com>; Kvam, Michele <michele.kvam@pse.com>; Popoff, Phillip
 <phillip.popoff@pse.com>; Diane Adams (dadams@enviroissues.com) <dadams@enviroissues.com>
 Cc: Kevin Jones <kevinjonvash@gmail.com>; Scanlan, Kathi (UTC) <kathi.scanlan@utc.wa.gov>
 Subject: Carbon Impact Action Item

Irena,

At the TAG 6 meeting, I brought up Action item #2 on slide 5 about including carbon impact scenarios or sensitivities. I don't believe this item is completed, even though legislation now requires that PSE to use a mandated social cost of carbon. I do not believe the legislation prevents PSE from using a higher social cost of carbon value to understand what is possible under unlikely but potentially more catastrophic conditions.

I requested that the High Impact value for the social cost of carbon also be run as an additional scenario or sensitivity. During the meeting, you expressed that it did not seem necessary. Since the meeting, I have had additional time to review materials, and I ask that you reconsider your initial rejection of my request. Slide 5 lists PSE's action in response to the action item as: "PSE will model **various** carbon impacts" (emphasis added). Thus, this action item is not completed if PSE only uses a single value for the social cost of carbon. I again request that this action item not be considered complete, and that you consider running at least 1 sensitivity using the High Impact value.

Thanks again,

Virginia

Virginia Lohr <u>Citizens' Climate Lobby</u> Volunteer lohr@turbonet.com From: Netik, Irena
Sent: Wednesday, June 05, 2019 9:07 AM
To: Virginia Lohr; Kvam, Michele; Popoff, Phillip; Diane Adams (dadams@enviroissues.com)
Cc: Kevin Jones; Scanlan, Kathi (UTC); Netik, Irena; IRP -- mail -Subject: RE: Carbon Impact Action Item

Virginia,

PSE is excited to work on the first Clean Energy Action Plan for the 2019 IRP and implement the Clean Energy Transformation Act (CETA). Our intention is to stay focused on the critical path work that ensures that we deliver on this goal. CETA brought exciting changes to Washington state, the IRPs and our work.

CETA lays out a direction for Washington state utilities to incorporate carbon impacts utilizing the social cost of carbon. We intend to follow the direction of the law. In addition, we are planning on modeling a sensitivity that eliminates all fossil fuels by 2030. Thank you for your request during the TAG #6 meeting and again in your email below. Your comments and PSE's direction will be reflected in the TAG #6 meeting notes.

We will keep Action Item #2 from TAG #6 open until the IRP book is filed.

Kind regards,

Irena Netik

Director, Planning & Analytics

Puget Sound Energy

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