



West Coast Partnership to Promote Alternative Fuel Corridors

The Landscape & Opportunities for Medium- and Heavy-Duty Vehicles

Alternative Fuel Infrastructure Corridor Coalition (AFICC)

Washington Workgroup

Webinar Session #2

Friday, September 21, 2018

10:30 a.m. – 12:00 p.m. PT

Overview

- AFICC Goals and Objectives
- Oregon Workgroup Roadmap
- Discussion Leader Presentations: Oregon Alternative Fuel Vehicle and Infrastructure Priorities, Needs and Opportunities
- Workgroup Discussion

Today's Discussion Leaders

Program Facilitators

- **John Mikulin**, Environmental Protection Specialist, EPA Region 9
- **Alycia Gilde**, Director, CALSTART

Presentations by:

- **Diane Turchetta**, Transportation Specialist, FHWA
- **Tonia Buell**, Project Development Manager, Innovative Partnerships, WSDOT
- **Kelly McGourty**, Manager, Transportation Planning, PSRC
- **Erik Saganic**, Air Resources Specialist, PSCAA
- **Jim Jensen**, Senior Bio-energy and Alternative Fuels Specialist, WSU



West Coast MD/HD Alternative Fuel Corridors

Interstate collaboration is needed to develop west coast corridors for MD/HD AFV fueling similar the one shown here for LD ZEVs. This would help to address:

- Emission reductions
- Fuel supply diversity
- Sustainable freight, public works, refuse collection, transit & school bus
- Local job creation and economic development



MD/HD Alternative Fuel Infrastructure Corridor Coalition

1. Convene a stakeholder coalition focused on M/HD alternative fuel infrastructure deployment.
2. Conduct stakeholder workgroups & targeted outreach to identify desired/unfunded M/HD alternative fuel stations.
3. Synthesize stakeholder input into a plan document.
4. Use the plan to support project development, leverage existing funds, and seek joint applications to US DOT and other competitive funding programs.
5. Obtain federal funding assistance to help implement infrastructure in California, Oregon and Washington (i.e., natural gas, propane, electric vehicle charging and hydrogen for public and private M/HD fleets).



AFICC Project Overview



Present Outcomes to Partners

Needs

- Prioritize Hot Spots (Areas of Congestion, Communities, Intermodal Freight Hubs)
- ID Alt. Fuel Infrastructure Gaps
- ID Best Techs/Fuels for Vocational/Transportation Activities/Project Areas

Draft Implementation Plan

- Include Themes & Priorities
- Outline Strategy & Actions
- Provide Recommendations
- ID AFV Project Partnerships
- Estimate Project Costs & ID Funds

Develop AFV Stakeholder Synthesis

- Summarize Workgroup Feedback
- Respond to Questions
- Outline Critical Barriers & Challenges
- Evaluate Needs & Costs for AFV Infrastructure

Facilitate Workgroup Sessions [CA, OR & WA]
Collect Feedback, Compile Info, & Research Q's

Establish Framework

- Define Workgroup Discussion Objectives
- ID Key Stakeholders
- ID Coalition-Supporting Resources
- ID Direct Outcomes

Opportunities

- ID partnerships with Freight Shippers, Carriers, BCOs, Ports, Railroads, Truck Associations (LMCs/IOOs) Truck Stops, Warehouses, EDCs, and Cities on Coordinated Alt. Fuel Corridor Projects



Alternative Fuel Infrastructure Corridor Coalition (AFICC) 2018 Washington Workgroup Roadmap

Webinar Sessions

Session #1
M/HD Alternative Fuel
Landscape and Opportunities
Friday, Sept. 21, 2018
10:30 a.m.– 12:00 p.m. PT

Partners provide an update on alternative fuel activities & opportunities to promote emission reductions, advance clean techs, & transportation sustainability through alternative fuel corridors.

Session #2
Natural Gas & Propane
Technologies
Thursday, Nov. 1, 2018
2:30 – 4:00 p.m. PT

Technology manufacturers and fueling infrastructure providers provide information on the latest emerging technologies, operational suitability, infrastructure considerations, & fleet best practices. These sessions are open to CA, OR and WA partners.

Session #3
Plug-In Electric & Hydrogen
Fuel Cell Technologies
Tuesday, Nov. 6, 2018
10:30 a.m. – 12:00 p.m. PT

Partners provide input on critical gaps & infrastructure needs along key corridors & evaluate actions and funding opportunities to support partnership, coordination & project implementation.

Session #4
M/HD Alternative Fuel
Infrastructure Needs
Monday, Dec. 10, 2018
1:00- 2:30 p.m. PT

Champion Strategy Calls

Session # 1:
Thurs. 8/30/18
11:00 – 12:00 p.m.

Session # 2:
Fri. 10/12/18
11:00 – 12:00 p.m.

Session # 3:
Fri. 11/30/18
1:00 – 2:00 p.m.



WEST COAST COLLABORATIVE
A public-private partnership to reduce diesel emissions



FHWA Alternative Fuels Corridor Program

WEST COAST COLLABORATIVE – ALTERNATIVE FUEL INFRASTRUCTURE
CORRIDOR COALITION WEBINAR

DIANE TURCHETTA | U.S. DEPARTMENT OF TRANSPORTATION



U.S. Department of Transportation
Federal Highway Administration

National Alternative Fuel Corridors



To improve the mobility of alternative fuel vehicles, the U.S. Department of Transportation (DOT) has designated national corridors in strategic locations along major highways for:

- ▶ Plug-in electric vehicle charging
- ▶ Hydrogen fueling
- ▶ Propane (LPG) fueling
- ▶ Natural gas (CNG, LNG) fueling

Combined Results

➤ Designations....

- ✓ 58 nominations
- ✓ Includes portions/segments of 84 Interstates, along with 43 US highways/state roads
- ✓ Comprise 44 states plus D.C.
- ✓ Covers over 100,000 miles of the National Highway System (all fuels combined)

FY 2018 Request for Nominations

- Anticipate issuing Round 3 request for nominations in September 2018
- Distributed through FHWA Division Offices
- Nominations due the end of January 2019
- Designations made in spring 2019
- No anticipated change in designation criteria
- Some changes in shapefile submissions

Regional Alternative Fuel Corridor Convening's

- The purpose is to help state and local agencies identify Interstate corridors that are potential candidates for designation or need additional facilities to change the designation from Corridor-Pending to Corridor-Ready.
- Representatives from states in the targeted region will be invited and multiple cross-state corridors will be discussed and analyzed for designation potential.



I-26 (South Carolina)

Regional Alternative Fuel Corridor Convening's

- Midwest – June 12 (St. Paul, MN)
- Southeast – Sept 25 (Charleston, SC)
- REV West States – Spring/Summer 2019
- NE/Mid-Atlantic – Fall 2019
- Texas and surrounding states - 2019

Future of AFC Program

ALTERNATIVE FUELS CORRIDOR

- Request for Nominations on an annual basis under life of FAST Act
- Possible inclusion in the next transportation reauthorization bill
- Enhanced coordination efforts with Clean Cities Program/NREL
- Enhanced collaboration with stakeholders including industry

For More Information

DOT Alternative Fuel Corridor Team Contact Information

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Resources

FHWA Alternative Fuels Corridor website:

http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

MUTCD Memorandum – Signing for Designated Alternative Fuel Corridors

https://mutcd.fhwa.dot.gov/resources/policy/alt_fuel_corridors/index.htm

DOE/NREL Alternative Fueling Station Locator:

<https://www.afdc.energy.gov/locator/stations/>

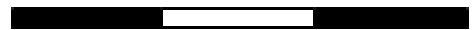
Rounds 1 & 2 EV Map – Corridor Ready and Pending



Alternative Fuel Corridors

-  EV - Corridor Ready
-  EV - Corridor Pending

0 200 400 600



Miles

[Go to Layers to turn on Fuel Stations](#)

Rounds 1 & 2 EV Map for HI - Corridor Ready and Pending



Legend

- 2010 Urbanized Area
- Alternative Fuel Corridors**
- EV - Corridor Ready
- EV - Corridor Pending

0 20 40 60
Miles

[Go to Layers to turn on Fuel Stations](#)

Rounds 1 & 2 CNG Map - Corridor Ready and Pending



Alternative Fuel Corridors

- CNG - Corridor Ready
- CNG - Corridor Pending

0 200 400 600
Miles

[Go to Layers to turn on Fuel Stations](#)

Rounds 1 & 2 LNG Map – Corridor Ready and Pending



Alternative Fuel Corridors
— LNG - Corridor Ready
- - - LNG - Corridor Pending
0 200 400 600
Miles
[Go to Layers to turn on Fuel Stations](#)

Rounds 1 & 2 LPG Map – Corridor Ready and Pending



Alternative Fuel Corridors

 LPG - Corridor Ready

 LPG - Corridor Pending

0 200 400 600

Miles

[Go to Layers to turn on Fuel Stations](#)

Rounds 1 & 2 HYD Map – Corridor Ready and Pending



Alternative Fuel Corridors

- Hydrogen - Corridor Ready
- Hydrogen - Corridor Pending

0 200 400 600

Miles

[Go to Layers to turn on Fuel Stations](#)

Washington State Freight Transportation System

Medium- and Heavy-Duty Alternative Fuel Landscape & Opportunities

Tonia Buell | Project Development Manager, Innovative Partnerships

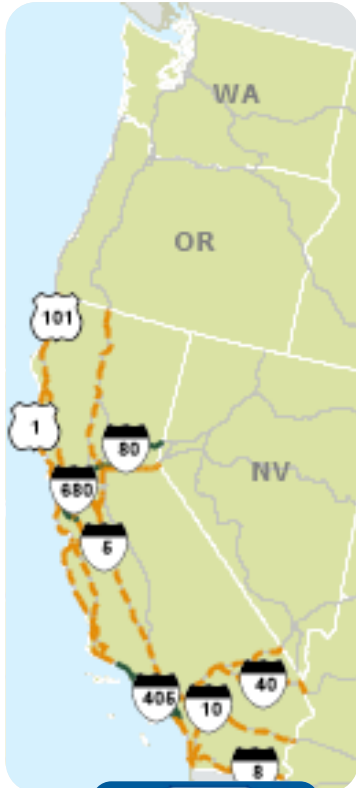
WCC - AFICC Webinar

September 21, 2018

FHWA Alternative Fuel Corridors



U.S. Department of Transportation
Federal Highway Administration



Green routes = "signage ready"

Orange routes = "signage pending"

Pacific Coast Collaborative Vision and Roadmap for a Low-Carbon Transportation System



British Columbia, Washington, Oregon and California partnership to accelerating the transformation of energy systems, buildings, and transportation.

For Medium- and Heavy-Duty Vehicles:

- Transitioning to low-carbon and zero emission alternatives to fossil diesel fuel in trucks, ships, ferries, and other modes.
- Shifting freight transport from heavy-duty diesel vehicles to more fuel-efficient modes, such as rail or sea.
- Developing West Coast low-carbon and zero emission fuel corridors within our region and connecting to the rest of North America.
- Electrifying non-road equipment at ports, airports, and other public and private facilities, including encouraging and supporting development of new technologies.



Source: www.pacificcoastcollaborative.org

West Coast Electric Highway



Accelerating EV adoption by promoting robust charging corridors.

Connecting Communities and Enabling Long Distance Travel

Seamless EV Driver Experience

- Equipment Specifications
- Highway Signs
- Branding and Marketing

I-5, Hwy 99, US 101, and other major highway corridors

Common vision, patchwork of funding and projects

www.westcoastelectrichighway.com

Freight and Trade Drive Washington's Economy

Washington is one of the most trade-dependent states in the nation per capita

- \$126 billion in total imports and exports value
- 11,352 small and medium sized goods exporters

Freight-dependent industries have major economic effect

- 1.4 million jobs in freight-dependent industries (wholesale/retail, manufacturing, construction, transportation, agriculture, forest products)
- \$550 billion in gross business income for freight-dependent sectors

Freight System Components

❖ **Global gateways:** access to national and international markets

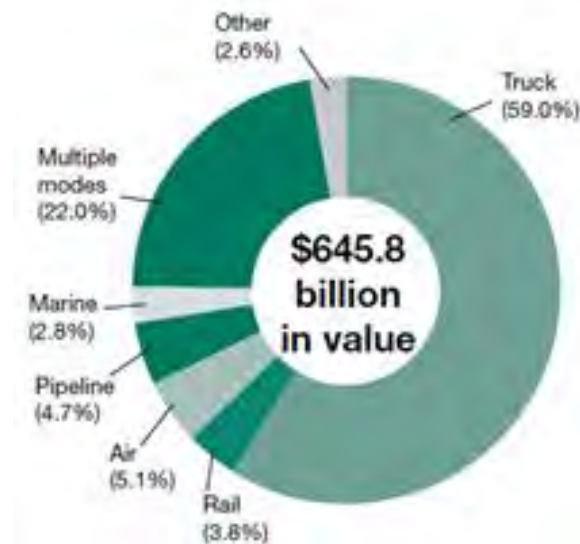
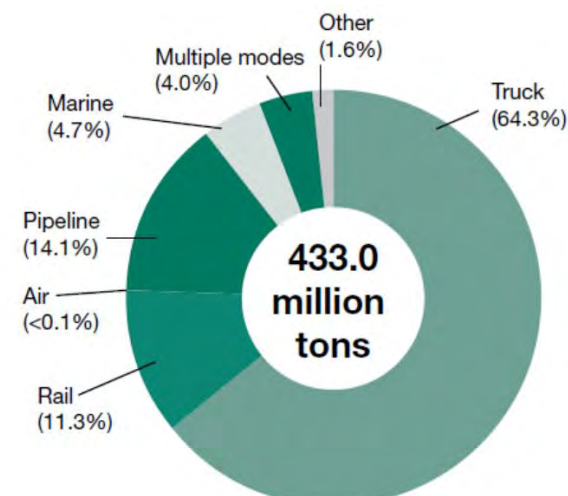
- Asia - \$37B in value
- Alaska - \$5B in value
- Canada - \$19B in value

❖ **Made in Washington:** freight manufactured or produced statewide

- Manufacturing - \$176B in value
- Food and Agriculture - \$49B in value

❖ **Delivering goods:** local delivery for businesses and residents

- Warehousing and Distribution - \$302B in value



2015 Freight Tonnage & Value

Freight and Goods Transportation System

Marine

Rail

Truck



W-1: More than 25M tons/yr
W-2: 10M to 25M tons/yr

R-1: More than 5M tons/yr
R-2: 1M to 5M tons/yr

T-1: More than 10M tons/yr
T-2: 4M to 10M tons/yr

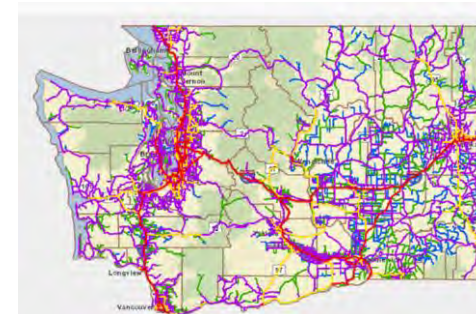
Freight System Planning

WSDOT's Role:

- Helps identify priority freight improvement projects in consultation with freight stakeholders
- Engages with Freight Advisory Committee (WAFAC), MPOs/ RTPOs, cities, counties, ports, associations, local jurisdictions, and project owners
- Assists with identifying and analyzing key freight issues: Economic Vitality, Preservation, Safety, Mobility, Environment, and Stewardship
- Creates planning documents to identify trends, issues and needs (forecast for 30% growth in freight by 2035)
- Supports strategies to improve freight transportation
- WSDOT Secretary of Transportation Roger Millar chairs the AASHTO National Special Committee on Freight
- Provides freight GIS planning tools:
www.wsdot.wa.gov/mapsdata/geodatacatalog/default.htm



Freight and Goods
Transportation System (FGTS)



AFICC Initiative

Potential Freight Partnership Opportunities:

- Aligning strategy for multi-state “seamless” freight corridors across state lines.
- Identifying grant opportunities and securing funding
- Exploring new technologies & business models
- Coordinating multi-state alternative fuel corridor plans
- Nominating alternative fuel corridor designations
- Providing forum for information sharing and collaboration with west coast partners, freight community, and businesses
- Developing list of priority alternative fueling locations

Thank you

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Puget Sound Regional Council

West Coast Collaborative Alternative Fuel Infrastructure Corridor Coalition

Medium- and Heavy-Duty Alternative Fuel Landscape & Opportunities
September 21, 2018

Who is PSRC?



Our Region

- 4 Counties
- 82 Cities and Towns

Our Members

- Cities, Counties, Ports and Transit
- State Agencies and Tribal Governments



What We Do

Federal (MPO), & State (RTPO) designated planning organization
Transportation, Growth Management, Economic Planning
Federal transportation funds to priority projects
Regional data and forecasts
Forum for regional issues

Four-Part Greenhouse Gas Strategy



Land Use	User Fees
Technology	Choices

Land Use

- Implement VISION 2040
 - Jobs housing balance
 - Centers, transit oriented development and efficient Communities

User Fees

Implement roadway pricing to support VMT reduction and reduce travel delay emissions

Choices

Expand transportation choices that reduce GHG emissions

Technology

Support development of technology to dramatically reduce tailpipe emissions

Complementary to the state program, other regional initiatives

Four-Part Greenhouse Gas Strategy



Technology

- First adopted in 2010; includes assumptions for:
 - *Electric vehicles, improved fuel economy, improvements to heavy duty vehicle standards, reduction of carbon in fuel*
- Subsequent plan updates addressed implementation over time
 - *Federal emissions standards and fuel economy, state efforts, market shares*
- Planning for new scenarios for further technological improvements – *focus on implementation*



Technology

- Identifying the nexus between the changing transportation paradigm --
 - *i.e, autonomous, connected, electric, shared*
- and planning for growth to 2050 --
 - *i.e., issues around parking, public rights of way, development patterns, etc.*



Freight

- Identifying issues between changing supply chain / urban goods deliveries and land use decisions
 - *Load / unload areas, parking, modal conflicts, etc.*
- Regional truck parking issues
- Technology needs



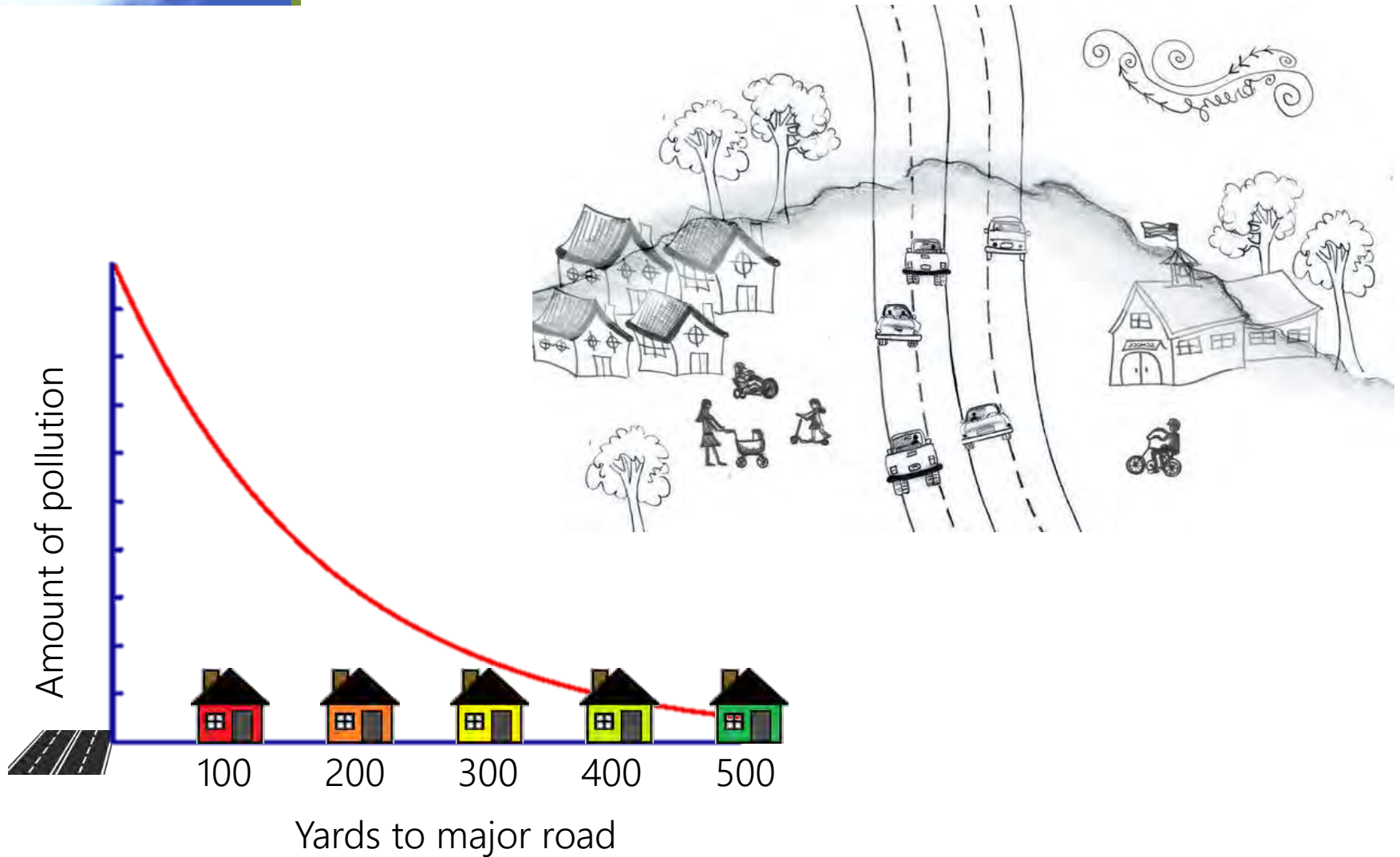
Inequity of near-road air quality impacts



Erik Saganić
Air Quality Scientist
September 2018



Many here live near busy roads



Community Air Tool

... lower income and minority races generally closer to traffic

Environmental Justice Risk



Weighted Road Density

Value



<http://arcg.is/1D8Kje>

- Census – ACS 2012-2016 5-year average
- WA DOH (2005-2014 Hospitalizations)
- WSDOT 2017 Traffic Volume
- Our air quality permit database

- Define our focus areas
 - Greater Duwamish Valley
 - Seattle Chinatown-International District
 - Auburn-Algona-Pacific
 - Working on another one now
- Way to prioritize our efforts and resources

Thanks for your attention

Erik Saganic

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RNG Development in Washington State

Jim Jensen

Senior Bioenergy and Alternative Fuels Specialist
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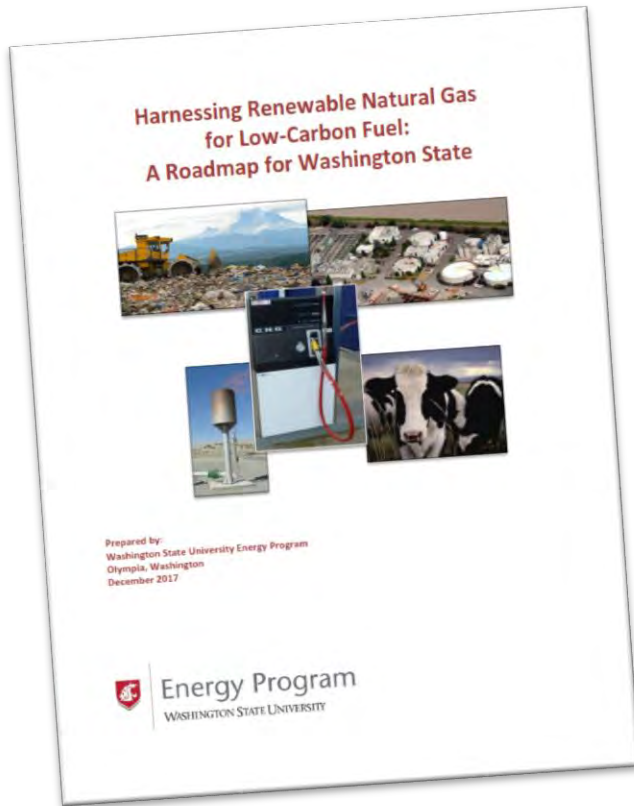


Energy Program

WASHINGTON STATE UNIVERSITY

www.energy.wsu.edu

2017 Roadmap



- Builds on prior work
- Benefits: jobs, improve air quality, reduce GHGs
- Rough RNG potential
- Integrate with natural gas utility markets
- Policy options

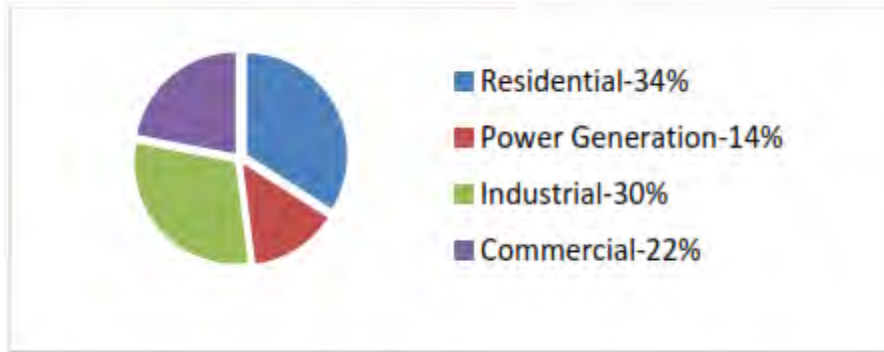
Find the roadmap here: <http://bit.ly/2mowmWn>

Washington RNG Potential

WA Energy Profile

Energy = 1,988 trillion BTU

Nat Gas = 308 trillion BTU



Diesel = 1 billion gallons

Est RNG Potential

20-26 trillion BTU

(8-10% of direct nat gas use)

198 million DGE

(20% of diesel)

50+ trillion BTU

(19% of direct nat gas use)

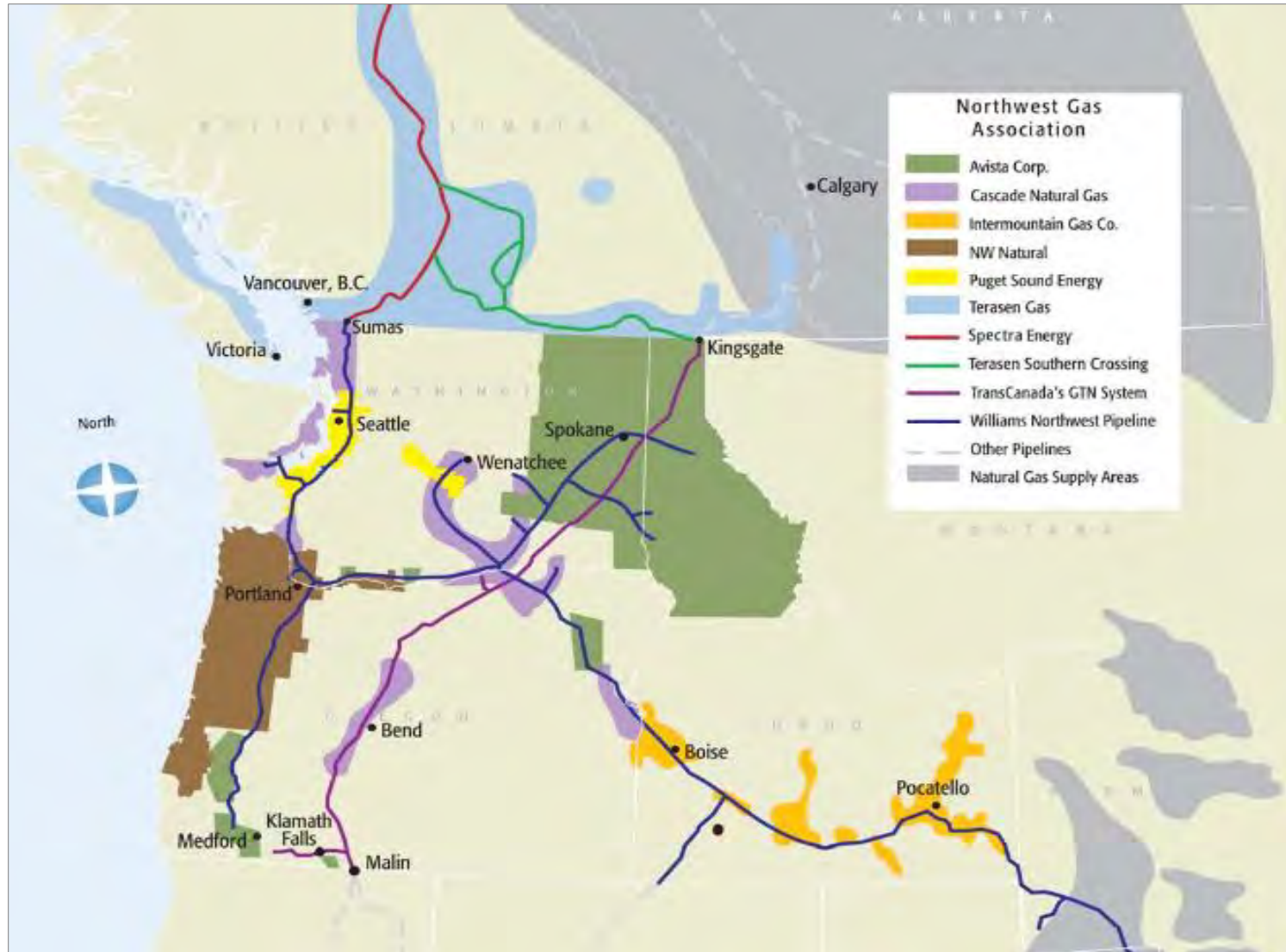
370 million DGE

(37% of diesel)

Pop Growth: 25-40% RNG increase

Lay of the Land

(Major Natural Gas Pipelines in Washington)



State Policy Options

- Carbon tax or other price on GHG emissions
- RNG portfolio standard for gas utilities
- Clean fuel standard
- Utility policy (re: interconnection standards, efficiency standards, net metering, standard offers)
- Environmental and waste regulations
- Streamline permitting for new facilities
- Purchasing contracts and preferences, including state highways and fleets
- Financial assistance/incentives (Clean Energy Fund, property tax deferral, sales tax exemptions, etc.)

2018 RNG Bill Passed

Substitute House Bill No. 2580

- Restore lapsed tax incentives for digester projects, expand types of eligible projects and the total incentive value per project.
- Study: quantify near-term opportunities, identify uses by state agencies, evaluate RNG portfolio standard policy option.
- Work with UTC, utilities, developers and other stakeholders on the pipeline gas quality standards.

Discussion Questions

- What alternative fuel technologies is your organization interested in?
- What infrastructure needs to you have for your business, community, or region?
- What funding resources are available to support implementation?
- What more would you like to learn about medium- and heavy-duty alternative fuel vehicles and infrastructure?



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WEST COAST COLLABORATIVE
A public-private partnership to reduce diesel emissions

Contact Us

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