



Symbiosis for Bioenergy: More Products, More Value

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Overview & Framing

Georgine Yorgey, Center for Sustaining Agriculture & Natural Resources, Washington State University

Panel: Agricultural Perspectives on Symbiosis and Bioenergy

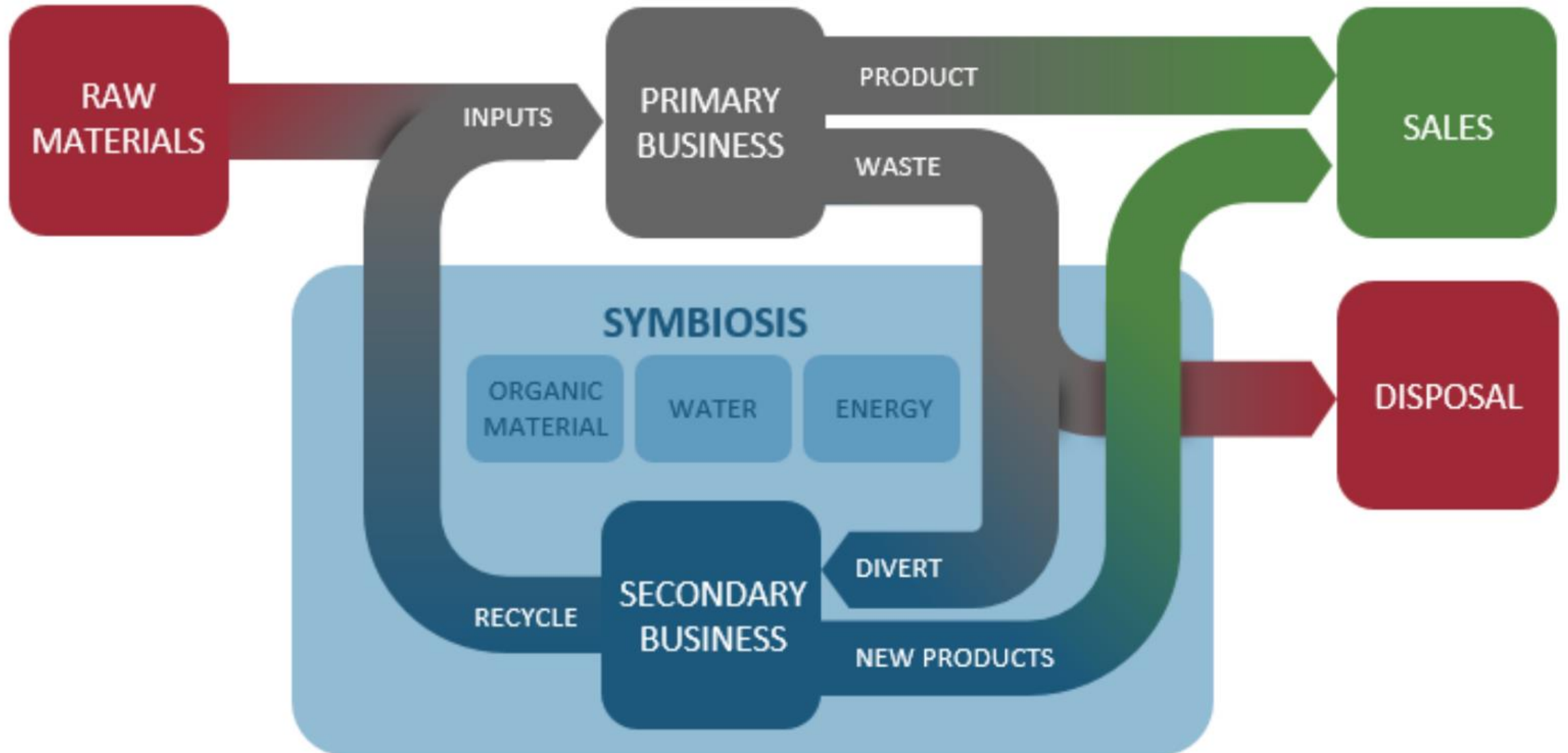
So Yun Bedlington, Principal Sustainability Engineer, Lamb Weston
N'Joe Nyoni, Senior Director of Sustainability, WA Dairy Farmers

Legislative Perspectives on Ag Symbiosis Study Tour of Denmark

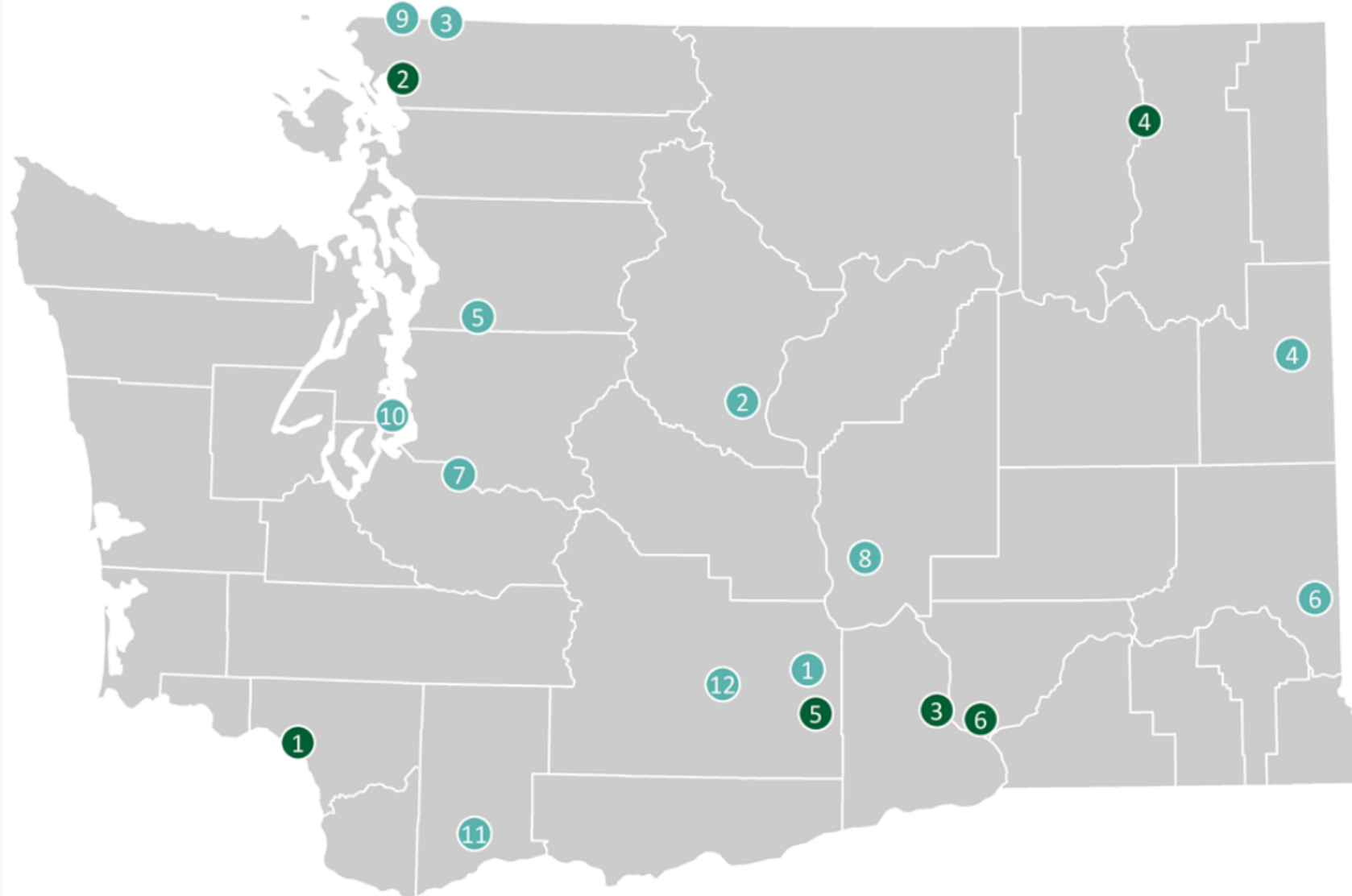
International Partnerships and Next Steps

Rhys Roth, Executive Director, Center for Sustainable Infrastructure

Symbi—What?!?



Symbiosis Projects With Washington Agriculture



Operational

- 1 The Augean Project
- 2 Beta Hatch
- 3 Edaleen Cow Power
- 4 Inland Empire Paper
- 5 Qualco Energy
- 6 Qualterra
- 7 Rainier Biogas
- 8 Royal Dairy
- 9 Vander Haak Dairy
- 10 Vashon Bioenergy Farm
- 11 Wind River Project
- 12 Yakama Nation Farms

Active Development

- 1 Divert Longview
- 2 HeartFoods
- 3 Lamb Weston
- 4 Myno Carbon
- 5 Pacific Ag Renewables
- 6 Pasco Process Water Reuse Facility

Industrial Symbiosis in Kalundborg, Denmark

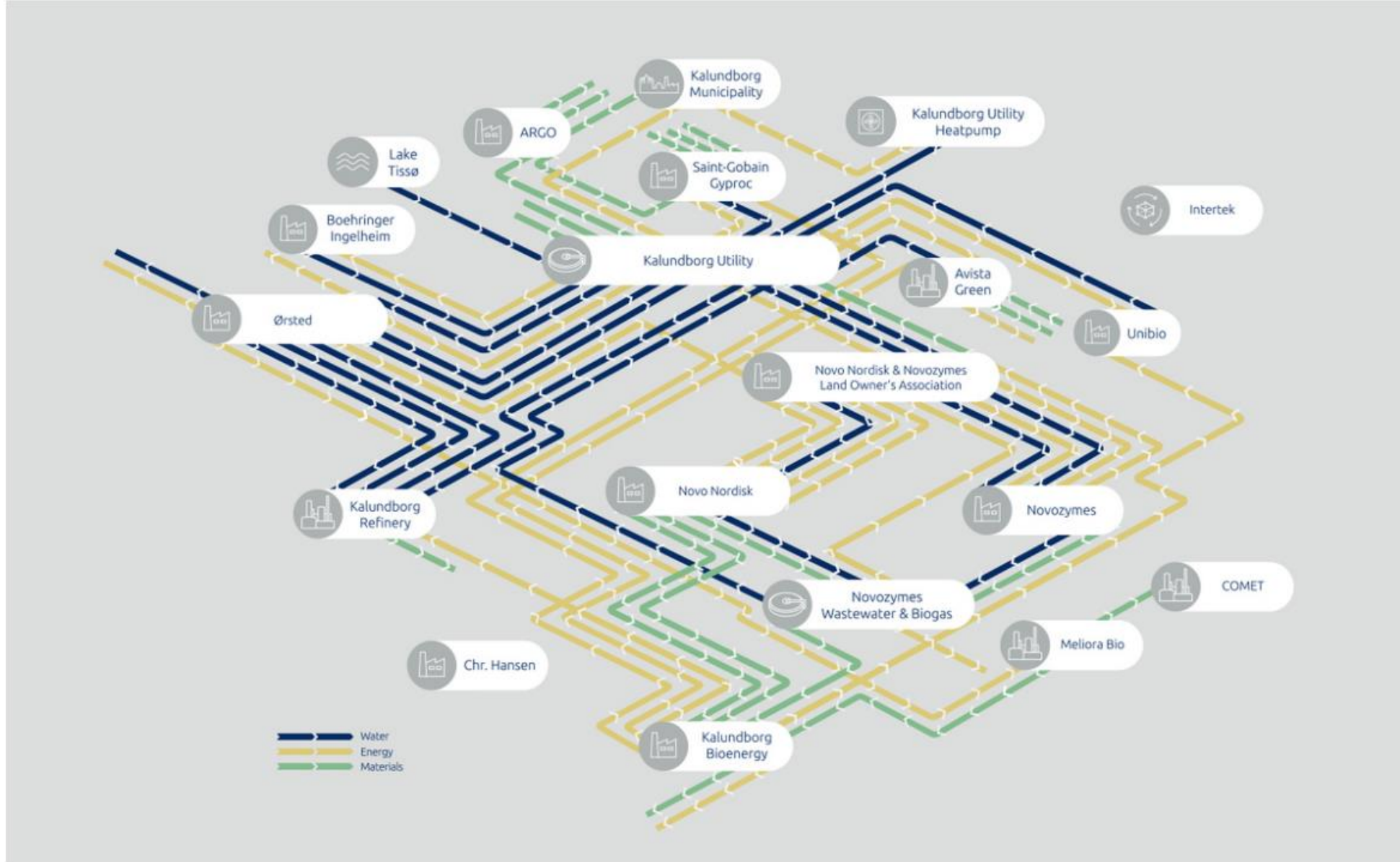


Image: Kalundborg Symbiosis

Symbiosis in Washington

Industrial Symbiosis (IS) is born in Kalundborg, DK

2017

2018

2019

2020

CSI joins 26 WA lawmakers on tours of IS projects in Denmark

\$100,000 appropriated for symbiosis project in Raymond

Legislature funds IS study

IS Bill passes but is vetoed due to the COVID-19 pandemic

2021

WA's SB 5345 passes, creating the 1st statewide IS program in the US

2022

Funding for new IS program quadrupled
Agricultural Symbiosis proviso

WA's IS story shared by CSI at Kalundborg Global Leadership Summit

Washington State University



Pacific Northwest National Laboratory



Center for Sustainable Infrastructure



Not pictured: Kiera Jensen (Evergreen State College, CSI Intern)

Key Recommendations from Agriculture Symbiosis Report

- 1) Coordinate and invest in agriculture symbiosis
- 2) Support market accelerator research
- 3) Help key state programs and industry to strategically align services
- 4) Forge collaboration agreements with countries and states who are symbiosis leaders

<https://csanr.wsu.edu/publications-library/energy/anaerobic-digestion/>

Ongoing Momentum Supporting Circular Economy Development in Washington





Panel: Agricultural Perspectives on Bioenergy

So Yon Bedlington, Principal Sustainability Engineer, Lamb Weston

N'Joe Nyoni, Senior Director of Sustainability, Washington Dairy Farmers