The mission of Carbon Tech Alliance is to be a leader in providing effective training and education by presenting high quality content to the future CCS workforce, and any others interested in understanding how CCS can be applied.
Initial Scope of Program

Topics:
- CCS overview
- site characterization
- site selection
- permitting and liability
- public perception and communication
- drilling issues
- CO$_2$ injection
- Monitoring/verification

Geographic focus:
- Northwestern U.S. and western Canada

Credit Hours/Cert's:
- professional development Hours (PDHs)
- certification programs
### Initial Scope of Program

**Who:**
- industry managers
- legislators and their staff
- engineers
- geologists
- technicians
- students
- general public

**How:**
- lectures and multiple-day short courses
- courses will integrate CCS topics
- tours of facilities conducting CO$_2$ sequestration research
- Symposia

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### Carbon Tech Alliance Partners

- Environmental Outreach and Stewardship (EOS) Alliance – Lead
- Pacific Northwest National Laboratory
Project History

- **101 CCS Lecture** – presented May 2010 and developed into video
- **Advisory Board** recruited June 2010 and has met two additional times
- **Marketing Plan** – presented at Advisory Board meeting
- **Carbon Tech Alliance Website** – went live Oct. 4, 2010
- **Fundamentals of CCS** – 2 day course June 2011, produced video of entire training
- **Symposium** – organized with local University
- **CCS Exchange** – quarterly newsletter delivered

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Fundamentals of CCS
Richland, WA  June 2011

- I. What is CCS?
- II. CCS Facility Siting
- III. CCS Project Permitting
- IV. Risk Assessment on MVA
- V. Managing Liability
- VI. Site Characterization
- VII. Public Perception
- VIII. Status of CCS
- IX. Geological Core Analysis

Pete McGrail – PNNL
Tom Anderson – PNNL
John Storman – WA Dept. Ecology
Wayne Rowe – Schlumberger
Lee Gresham – Carnegie Mellon
Charlotte Sullivan – PNNL
Gretchen Hund – PNNL
Pete McGrail – PNNL
Charlotte Sullivan – PNNL
Advisory Board

- **Dr. Stefan Bachu, P.Eng.**
  Distinguished Scientist, CO2 Storage
  Alberta Innovates - Technology Futures

- **John Biggane, RC, LG, LEG, Ling**
  Senior Principal/Geo Engineers, Inc.

- **Will Einstein**
  Manager of Emerging Technology and Climate Change Puget Sound Energy

- **Gretchen E. Hund**
  Senior Staff Scientist
  Pacific Northwest National Laboratory

- **Dr. Wayne Lei, Chairman**
  Director of Research and Development
  Portland General Electric

- **Charlotte Sullivan, Senior Research Scientist**
  Applied Geology and Geochemistry
  Energy and Environment Directorate
  Pacific Northwest National Laboratory

- **Lucinda Low Swartz, Esq.**
  Lucinda Low Swartz Environmental Consulting

- **David Szamary, PhD**
  Vice Provost
  University of Washington Educational Outreach

- **David Weatherby**
  Senior PM, Senior Geologist
  URS Corporation

- **Malcolm Wilson, PhD**
  Director - Office of Energy and Environment
  University of Regina

- **John Wolff, PhD**
  Professor & Director of GeoAnalytical Lab
  School of Earth & Environmental Sciences
  Washington State University

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Training Platform

- Build on NWETC Training model
- Collaborate with high-quality partners
- Use the right approach with the right students
- Pre and Post Service Professionals
- Use Web and Social Media tools
- Utilize feedback cycle
Key Issues going forward

- Develop strength-based regional partnerships
- Develop Program – Train – Deliver
- $$$ Collaborative funding and resource utilization
- Target workforce – ????? What is it
  - Pre-service
  - Grad and post-grad
  - TAW – total available workforce
  - TNW – total necessary workforce
  - Job qualifications – general vs. specific

Big and Small Picture

- Big Picture – what is it?
  - Have we accurately assessed TAM?
  - Are we ready if/when the TAM hits?
- Small Picture
  - Feasibility
  - People to work
- Can good science become high quality work with greater meaning and family wages?
Building Community Via Web/ Social Media

www.carbontechalliance.org

@CarbonTechNW

“Carbon Tech Alliance”

Brief Questions or Comments

Thank you.