



6th CSLF Capacity Building Workshop

November 16-20, 2008

Washington, DC, USA





Dear Workshop Attendees:

On behalf of the Carbon Sequestration Leadership Forum (CSLF) and the United States Department of Energy, I would like to welcome you to the 6th CSLF Capacity Building in Emerging Economies Workshop.

This workshop builds on the achievements of the previous four CSLF capacity building workshops, which together have done a great deal towards accomplishing the objectives of the CSLF Capacity Building Task Force: to assist emerging economy CSLF Members to develop the knowledge, skills, expertise and institutions needed to deploy carbon capture and storage (CCS) technologies; to develop training and educational resources that all CSLF Members can utilize; to build on lessons learned from CSLF-recognized projects; and to collaborate with other international CCS initiatives.

The date and location for this workshop were carefully chosen to give participants the unique opportunity to be part of the 9th International Conference on Greenhouse Gas Control Technologies (GHGT-9). Workshop participants will be able to attend more than 50 presentations and learn from world renowned experts in CCS technologies in a stimulating and interactive atmosphere. There will be ample opportunities for networking and collaborating with members of the CCS community from around the globe.

The workshop organizers have planned an exciting and educational five days of presentations and interactive panel discussions. The approach for this workshop is somewhat different from past workshops in order to give attendees broad exposure to a wide range of issues and technologies. Different curricula have been developed for technical people and for policy makers. It is my sincere hope that this workshop will be even more successful and that all attendees will come away with a much better understanding of CCS issues and technologies.

Sincerely,

A handwritten signature in black ink, appearing to read "Justin R. Swift", is positioned below the word "Sincerely,".

Justin R. Swift
Deputy Assistant Secretary for International Affairs,
Office of Fossil Energy, U.S. Department of Energy
and
Chair, CSLF Capacity Building Task Force

Synopsis of the Capacity Building Workshop Program

The agenda for the 6th Capacity Building for Emerging Economies Workshop, November 16–20, 2008 has been assembled to give attendees the fullest exposure to the latest information and best experts on carbon capture and storage (CCS) issues and technologies. Attendees will have full access to the entire 9th International Conference on Greenhouse Gas Control Technologies (GHGT-9) as well as Capacity Building sessions tailored for Workshop attendees.

The Workshop program has been divided into a Policy Tract and a Technical Tract. The separation of the sessions into two tracts will make it easier for attendees to target the presentations that serve their specific interests as policy makers or technical experts. Attendees are free to attend any sessions they wish. The workshop will begin with all Workshop registrants attending the Opening Session from 14:00-16:00 in the Executive Room followed by the GHGT-9 reception from 16:00-20:00 in the Diplomat Ballroom. The reception will be a great socializing and networking opportunity. A map of the Omni Shoreham hotel has been provided in this informational packet to help you find your way around the hotel.

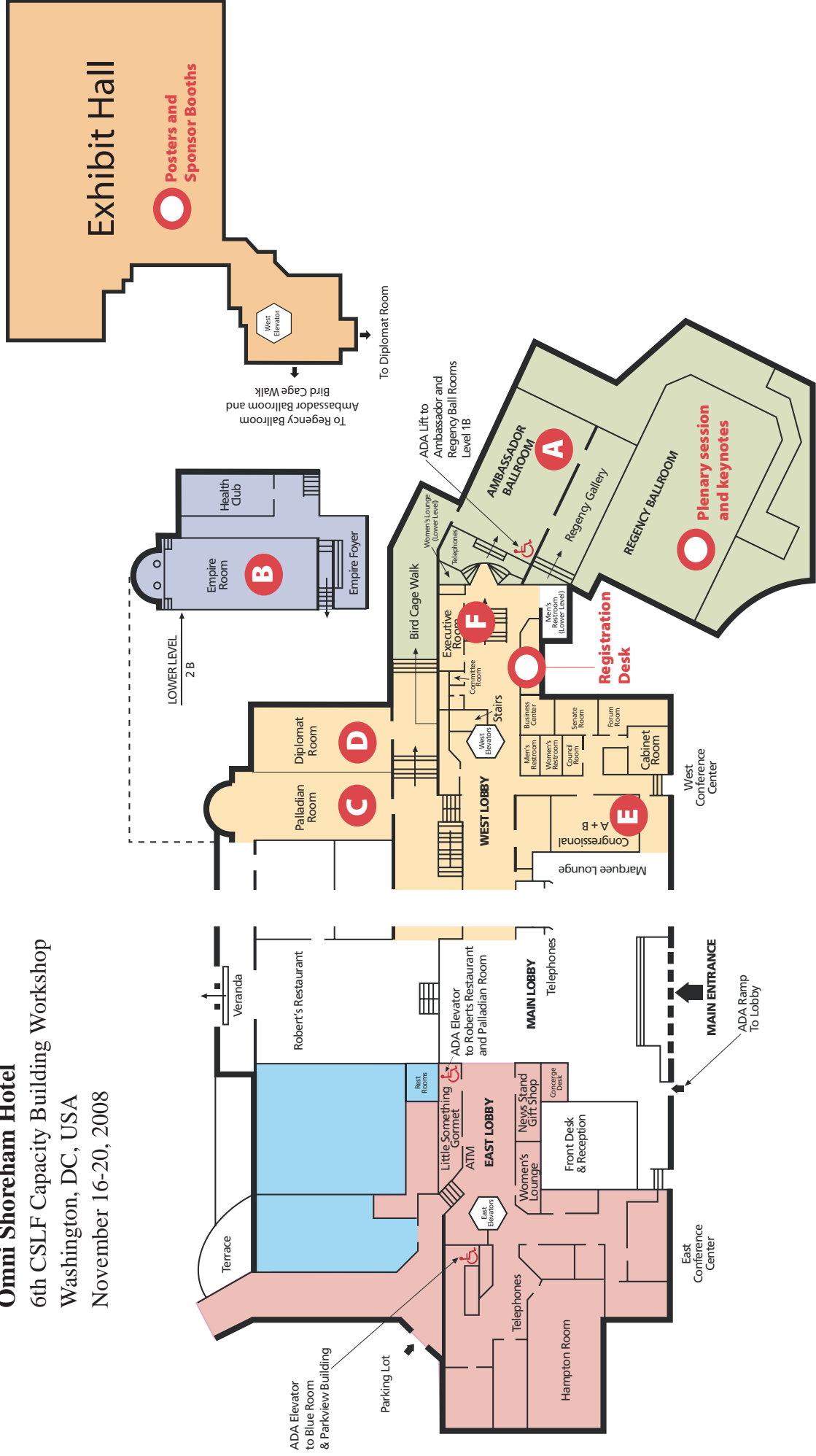
The GHGT-9 conference gets underway at 11:00 on Monday, November 17th with the first session running until lunch is served at 12:30. Monday's afternoon session begins at 2:30 and runs until 4:00. The Workshop has planned a special evening event outside of the hotel. Buses will depart from outside of the main hotel entrance at 18:45 and return by 22:00.

The sessions on Tuesday, November 18th will begin at 8:30 and continue until 18:00 with short morning and afternoon breaks and lunch from 12:15-14:15. Wednesday's sessions also start at 8:30 and run until 15:45 with short morning and afternoon breaks and lunch. Wednesday evening culminates with the GHGT-9 Gala Banquet.

The conference concludes on Thursday, November 20th. The morning is devoted to GHGT-9 sessions from 8:30 until 12:15. The entire Workshop convenes after lunch at 14:15 for the final afternoon of Capacity Building sessions. The Workshop is scheduled to adjourn at 18:30.

Floor Plan

Omni Shoreham Hotel
 6th CSLF Capacity Building Workshop
 Washington, DC, USA
 November 16-20, 2008



POLICY TRACT

CSLF CAPACITY BUILDING WORKSHOP

GHGT-9

Washington, D.C.

November 16 - 20, 2008

Day	Session	Estimated Time	Time Slot	Presentation	Location
Sunday November 16		2:00-4:00	1	CSLF Capacity Building Opening Session: Welcome & Introductory Remarks <i>Judd Swift - Chair, Capacity Building for Emerging Economies Task Force; Deputy Assistant Secretary for International Affairs, U.S. Department of Energy</i>	Executive Room
			2	CSLF Capacity Building Opening Session: Welcome & Introductory Remarks <i>Brendan Beck, IEA GHG</i>	Executive Room
			3	CSLF Capacity Building Opening Session “Why CCS? - <i>Jay Braitsch, Office of Planning and Environmental Analysis, U.S. Department of Energy</i>	Executive Room
			4	Panel Discussion: Why CCS? <i>Jay Braitsch</i> <i>Robert Gentile, Leonardo Technologies, Inc.</i> <i>Brendan Beck</i> <i>Judd Swift</i>	Executive Room
		4:00-8:00	GHGT-9 WELCOME RECEPTION		Diplomat Ballroom

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Monday November 17	1	11:00-12:30	1	Financing the First CCS Projects	Palladian Ballroom	
			2	Long Tcological Sequestration	Ambassador Ballroom	
			3	Getting Large-Scale Geological Sequestration Projects Started: What Does it Take?	Ambassador Ballroom	
			12:30-2:30	LUNCH		
	2	2:30-4:00	1	US Department of Energy's Regional Carbon Sequestration Partnership Program: Overview – <i>John Litynski</i>	Congressional A&B	
			2	CCS Legal & Regulatory Developments: A Global Round-up – <i>Ian Havercroft</i>	Diplomat Ballroom	
			3	CCS at Pace and Scale: Implications of the Supply Chain	Diplomat Ballroom	
			4	The Role of CCS in the EU – <i>Directorate-General for Research</i>	Congressional A&B	
			5	Update on Vattenfall's 30 MWth Oxyfuel Pilot Plant in Schwarze Pumpe – <i>Lars Strömberg</i>	Empire Ballroom	
			6:45-10:00	CSLF WORKSHOP EVENING PROGRAM & DINNER CRUISE (Buses depart Omni Hotel at 6:45PM)		

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Tuesday November 18	3	8:30-10:15	1	International Marine Regulation of CO ₂ Geological Storage. Developments and Implications of the London and OSPAR Conventions – <i>Tim Dixon</i>	Palladian Ballroom	
			2	The EU Enabling Legal Framework for Carbon Capture and Geological Storage – <i>Scott Brockett</i>	Palladian Ballroom	
			3	Optimization of Carbon Capture Percentage for Technical and Economic Impact of Near-Term CCS Implementation at Coal-Fired Power Plants – <i>Ashleigh N. Hildebrand</i>	Diplomat Ballroom	
			4	A Vision of a CCS Business – the ZeroGen Experience – <i>John Bradshaw</i>	Congressional A&B	
			5	‘Capture Readiness’ – Lock-in Problems for CCS Governance – <i>Nills Markusson</i>	Palladian Ballroom	
		10:15-10:45	BREAK			
	4	10:45-12:15	1	Large Scale US Unconventional Fuels Production and the Role of Carbon Dioxide Capture and Storage Technologies in Reducing Greenhouse Gas Emission from this Potential New Industry – <i>Robert Dahowski</i>	Diplomat Ballroom	
			2	Learning about Carbon Capture and Storage (CCS): Changing Perceptions and Technology Experts – <i>Jennie Stephens</i>	Executive Room	
			3	Stakeholder Attitudes on Carbon Capture and Storage - An International Comparison – <i>Filip Johnsson</i>	Executive Room	
			4	Informed Public Opinion on CCS in Comparison to Other Mitigation Options – <i>Marjolein de Best-Waldhober</i>	Executive Room	

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location
Tuesday November 18		12:15-2:15	LUNCH		
	5	2:15-3:45	1	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom
			2	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom
			3	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom
			4	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom
		3:45-4:15	BREAK		
	6	4:15-6:00	1	Geologic and Operational Factors Affecting CO ₂ Plume Distribution – <i>Scott Frailey</i>	Ambassador Ballroom
			2	Project Financing of Coal Power Plants with Carbon Capture and Sequestration – <i>Michael Hamilton</i>	Palladian Ballroom
			3	Economics of Geological CO ₂ Storage and Leakage – <i>Bob van der Zwaan</i>	Diplomat Ballroom
			4	Progress on Including CCS Projects in the CDM: Towards Increased Awareness and Better Methodologies – <i>Heleen de Coninck</i>	Palladian Ballroom
			5	The Role of CCS and Renewables in Tackling Climate Change – <i>Tiina Koljonen</i>	Diplomat Ballroom

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Wednesday November 19	7	8:30-10:15	1	Engaging the Public on Carbon Dioxide Capture and Storage: Does a Large Group Process Work? – <i>Peta Ashworth</i>	Palladian Ballroom	
			2	Variability and Uncertainty in the Cost of Saline Formation Storage – <i>Sean McCoy</i>	Diplomat Ballroom	
			3	Influential Information and Factors for Social Acceptance of CCS: the 2nd Round of Survey of Public Opinion in Japan – <i>Kenshi Itaoka</i>	Palladian Ballroom	
			4	Energy-Economic, Structural, and Industrial Policy Analysis of Re-fitting Coal Fired Power Plants with CO ₂ -Capture in North Rhine-Westphalia / Germany – <i>Peter Viebahn</i>	Diplomat Ballroom	
			5	Analysis of Geologic CO ₂ Sequestration Costs for the United States and Implications for Climate Change Mitigation – <i>Christa Clapp</i>	Diplomat Ballroom	
		10:15-10:45	BREAK			
	8	10:45-12:15	1	Issues Forum: Moving Forward to Large-Scale Deployment of CCS	Palladian Ballroom	
			2	Issues Forum: Moving Forward to Large-Scale Deployment of CCS	Palladian Ballroom	
			3	Issues Forum: Moving Forward to Large-Scale Deployment of CCS	Palladian Ballroom	
			4	Issues Forum: Moving Forward to Large-Scale Deployment of CCS	Palladian Ballroom	

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Wednesday November 19		12:15-2:15	LUNCH			
	9	2:15-3:45	1	Issues Forum: The View from Wall Street	Palladian Ballroom	
			2	Issues Forum: The View from Wall Street	Palladian Ballroom	
			3	Issues Forum: The View from Wall Street	Palladian Ballroom	
			4	Issues Forum: The View from Wall Street	Palladian Ballroom	
		3:45-4:15	BREAK			
	10	4:15-5:45	1	TBD	Palladian Ballroom	
			2	CCS-Bonds as a Superior Instrument to Incentivize Secure Carbon Sequestration – <i>Hermann Held</i>	Palladian Ballroom	
			3	Pore Space Ownership Issues for CO ₂ Sequestration in the US – <i>Ian Duncan</i>	Palladian Ballroom	
			4	Tipping Fees Can't Save Us from the Tipping Point: The Need to Create Durable, Rational Approaches to Risk Management that Motivate the Development and Adoption of Geologic CO ₂ Storage Best Practices – <i>Chiara Trabucchi</i>	Palladian Ballroom	
	GHGT-9 GALA BANQUET					

POLICY TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Thursday November 20	11	8:30-10:15	1	CO ₂ Storage in Aquifers I – Current State of Scientific Knowledge – <i>Karsten Michael</i>	Ambassador Ballroom	
			2	Trials and Tribulations of Getting CCS in an ETS. Principles for CCS in an ETS from UK Work for the EU ETS – <i>Tim Dixon</i>	Palladian Ballroom	
			3	CCS - Perceptions Concerning Contributions to Sustainable Development – <i>Kenneth Möllersten</i>	Palladian Ballroom	
			4	Risk of Leakage versus Depth of Injection in Geological Storage – <i>Michael Celia</i>	Congressional A&B	
			5	CCS as Part of a Global Cultural Development for Environmentally Sustainable Energy Production – <i>Samuela Vercelli</i>	Palladian Ballroom	
		10:15-10:45	BREAK			
	12	10:45-12:15	1	Issues Forum: Carbon Policy Post Kyoto	Palladian Ballroom	
			2	Issues Forum: Carbon Policy Post Kyoto	Palladian Ballroom	
			3	Issues Forum: Carbon Policy Post Kyoto	Palladian Ballroom	
			4	Issues Forum: Carbon Policy Post Kyoto	Palladian Ballroom	
		12:15-2:15	LUNCH			
		2:15-4:15		GHGT-9 Closing Plenary Panel Discussion - The Challenges Ahead		
		4:30-6:30	1	CSLF Capacity Building Closing Session: “Understanding Risks Associated with Carbon Capture and Storage” <i>Jim Ekman - Leonardo Technologies, Inc.</i>	Congressional A&B	

TECHNICAL TRACT

CSLF CAPACITY BUILDING WORKSHOP

GHGT-9

Washington, D.C.

November 16 - 20, 2008

Day	Session	Estimated Time	Time Slot	Presentation	Location
Sunday November 16		2:00-4:00	1	CSLF Capacity Building Opening Session: Welcome & Introductory Remarks <i>Judd Swift - Chair, Capacity Building for Emerging Economies Task Force; Deputy Assistant Secretary for International Affairs, U.S. Department of Energy</i>	Executive Room
			2	CSLF Capacity Building Opening Session: Welcome & Introductory Remarks <i>Brendan Beck, IEA GHG</i>	Executive Room
			3	CSLF Capacity Building Opening Session "Why CCS? - <i>Jay Braitsch, Office of Planning and Environmental Analysis, U.S. Department of Energy</i>	Executive Room
			4	Panel Discussion: Why CCS? <i>Jay Braitsch</i> <i>Robert Gentile, Leonardo Technologies, Inc.</i> <i>Brendan Beck</i> <i>Judd Swift</i>	Executive Room
		4:00-8:00	GHGT-9 WELCOME RECEPTION		Diplomat Ballroom

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Monday November 17	1	11:00-12:30	1	Capture at New Coal-fired Power Plants	Empire Ballroom	
			2	Retrofitting Capture to Existing Plants	Empire Ballroom	
			3	Getting Large-Scale Geological Sequestration Projects Started: What Does it Take?	Ambassador Ballroom	
			12:30-2:30	LUNCH		
	2	2:30-4:00	1	Subsurface Development of CO ₂ Disposal as Part of the Gorgon Project – <i>Matthew Flett</i>	Palladian Ballroom	
			2	Integration and Deployment of Geologic Storage and Monitoring across Two Deep Saline Reservoirs with Post-Combustion Capture at American Electric Power Mountaineer Plant – <i>Neeraj Gupta</i>	Palladian Ballroom	
			3	CCS at Pace and Scale: Implications of the Supply Chain	Diplomat Ballroom	
			4	Post-combustion Capture R&D and Pilot Plant Operation in Australia – <i>Paul H.M. Feron</i>	Empire Ballroom	
			5	Update on Vattenfall’s 30 MWth Oxyfuel Pilot Plant in Schwarze Pumpe – <i>Lars Strömberg</i>	Empire Ballroom	
			6:45-10:00	CSLF WORKSHOP EVENING PROGRAM & DINNER CRUISE (Buses depart Omni Hotel at 6:45PM)		

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Tuesday November 18	3	8:30-10:15	1	Storage of CO ₂ in Saline Aquifers – Lessons Learned from 10 years of CO ₂ Injection into the Utsira Formation in the Sleipner Area – <i>Christian Hermanrud</i>	Congressional A&B	
			2	Evaluating the Impact of Fractures on the Long-term Performance of the In Salah CO ₂ Storage Site – <i>Martin Iding</i>	Congressional A&B	
			3	Optimization of Carbon Capture Percentage for Technical and Economic Impact of Near-Term CCS Implementation at Coal-Fired Power Plants – <i>Ashleigh N. Hildebrand</i>	Diplomat Ballroom	
			4	A Vision of a CCS Business – the ZeroGen Experience – <i>John Bradshaw</i>	Congressional A&B	
			5	Valuing Flexible Operation of Power Plants with CO ₂ Capture – <i>Hannah Chalmers</i>	Diplomat Ballroom	
			10:15-10:45	BREAK		
	4	10:45-12:15	1	Integrated Geophysical and Geochemical Monitoring Programs of the IEA GHG Weyburn-Midale CO ₂ Monitoring and Storage Project – <i>Donald White</i>	Congressional A&B	
			2	Acid Gas Injection and Monitoring at the Zama Oil Field in Alberta, Canada: A Case Study in Demonstration-Scale Carbon Dioxide Sequestration – <i>Steven Smith</i>	Congressional A&B	
			3	Stakeholder Attitudes on Carbon Capture and Storage An International Comparison – <i>Filip Johnsson</i>	Executive Room	
			4	Water Reactivity in the Liquid and Supercritical CO ₂ Phase: Has Half the Story Been Neglected? – <i>Peter McGrail</i>	Ambassador Ballroom	

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Tuesday November 18		12:15-2:15		LUNCH		
	5	2:15-3:45	1	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom	
			2	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom	
			3	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom	
			4	Issues Forum: Designing and Implementing Regulatory Frameworks	Palladian Ballroom	
			3:45-4:15		BREAK	
	6	4:15-6:00	1	Geologic and Operational Factors Affecting CO ₂ Plume Distribution – <i>Scott Frailey</i>	Ambassador Ballroom	
			2	Comparison of Simulation and Micromodel Predictions of Flow in 2-D Networks – <i>Martin Ferer</i>	Congressional A&B	
			3	Core- and Pore-scale Experimental Study of Relative Permeability Properties of CO ₂ and Brine in Reservoir Rocks – <i>Jean-Christophe Perrin</i>	Congressional A&B	
			4	The Impact of Electric Passenger Transport Technology on the Demand for Coal-fired Power with CCS under a Climate Policy – <i>Marshall Wise</i>	Diplomat Ballroom	
			5	Wellbore Integrity and CO ₂ -brine Flow Along the Casing-cement Microannulus – <i>J. William Carey</i>	Congressional A&B	

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Wednesday November 19	7	8:30-10:15	1	Chilled Ammonia Process Field Pilot Operation at WE Energies – <i>Fred Kozak</i>	Empire Ballroom	
			2	Testing of Ammonia based CO ₂ Capture with Multi-Pollutant Control Technology – <i>Christopher McLarnon</i>	Empire Ballroom	
			3	Effects of Salinity on Hydrate Stability and Implications for Storage of CO ₂ in Natural Gas Hydrate Reservoirs – <i>Bjørn Kvamme</i>	Congressional A&B	
			4	Degradation Study of New Solvents for CO ₂ Capture in Post-combustion – <i>Pierre-Louis Carrette</i>	Executive Room	
			5	Experimental Study on Monitoring and Quantifying of Injected CO ₂ from Resistivity Measurement in Saline Aquifer Storage – <i>Yoshihiro Nakatsuka</i>	Ambassador Ballroom	
		10:15-10:45	BREAK			
	8	10:45-12:15	1	Considerations for Treating Impurities in Oxy-Combustion Flue Gas Prior to Sequestration – <i>Bruce Sass</i>	Empire Ballroom	
			2	The Potential of Advanced Technologies to Reduce Carbon Capture Costs in Future IGCC Power Plants – <i>Julianne Klara</i>	Diplomat Ballroom	
			3	The Effects of Gas-Fluid-Rock Interactions on CO ₂ Injection and Storage: Insights from Reactive Transport Modeling – <i>Yitian Xiao</i>	Congressional A&B	
			4	Effect of Vertical Heterogeneity on Long-term Migration of CO ₂ in Saline Formations – <i>Jonathan Ennis-King</i>	Congressional A&B	

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Wednesday November 19		12:15-2:15	LUNCH			
	9	2:15-3:45	1	Geological Model and Hydrogeological Framework of an Active CO ₂ Sequestration Project in the Weyburn-Midale Area, Saskatchewan: Leading to a Further Understanding of Possible CO ₂ Migration – <i>Gavin Jensen</i>	Congressional A&B	
			2	Conversion of Existing Coal-fired Power Plants to Oxyfuel Combustion: Case Studies with Experimental Results and CFD-Simulations – <i>Song Wu</i>	Empire Ballroom	
			3	On-line Greenhouse Gas Detection from Soils and Rock Formations – <i>Jacques PIRONON</i>	Ambassador Ballroom	
			4	Technology Comparison of CO ₂ Capture for a Gas-to-Liquids Plant – <i>Sandra Heimel</i>	Diplomat Ballroom	
			3:45-4:15	BREAK		
	10	4:15-5:45	1	Using Reservoir Architecture to Maximize CO ₂ Storage Capacity – <i>Vello Kuuskraa</i>	Congressional A&B	
			2	Enhancing Process Reaction Kinetics for Mineral Carbon Sequestration – <i>Sam Krevor</i>	Executive Room	
			3	Feasibility of Injection Large Volume of CO ₂ in Aquifers – <i>Yuri Leonenko</i>	Congressional A&B	
			4	Basalt-CO ₂ -H ₂ O Interactions and Variability in Carbonate Mineralization Rate – <i>H. Todd Schaefer</i>	Executive Room	
				GHGT-9 GALA BANQUET		

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location	
Thursday November 20	11	8:30-10:15	1	eCO ₂ : Post-combustion or Oxyfuel - A Comparison between Coal Power Plants with Integrated CO ₂ Capture – <i>Pierre-Antoine Bouillon</i>	Diplomat Ballroom	
			2	Operating Experience with Chemical Looping Combustion in a 120kW Dual Circulating Fluidized Bed (DCFB) Unit – <i>Philipp Kolbitsch</i>	Empire Ballroom	
			3	The CO ₂ Reduction Potential of Coal-to-Liquids Plants with Carbon Capture and Sequestration – <i>Hari Chandan Mantripragada</i>	Diplomat Ballroom	
			4	Risk of Leakage versus Depth of Injection in Geological Storage – <i>Michael Celia</i>	Congressional A&B	
			5	Factors Affecting the Chromatographic Partitioning of CO ₂ and H ₂ S Injected into a Water-saturated Porous Medium – <i>Stefan Bachu</i>	Ambassador Ballroom	
		10:15-10:45	BREAK			
	12	10:45-12:15	1	Assessing the Value of Capture Ready in New-built Coal Fired Power Plants in China – <i>Xi Liang</i>	Diplomat Ballroom	
			2	Assessment of CO ₂ Storage Performance of the Enhanced Coalbed Methane Pilot Site in Kaniow – <i>Frank van Bergen</i>	Ambassador Ballroom	
			3	A Technical Basis for CO ₂ Storage Practices and Regulations – <i>Cal Cooper</i>	Congressional A&B	
			4	Towards Best Practice Guidelines for Selection, Characterization, and Qualification of Sites and Projects for Geological Storage of CO ₂ – <i>Jørg Aarnes</i>	Congressional A&B	

TECHNICAL TRACT

Day	Session	Estimated Time	Time Slot	Presentation	Location
		12:15-2:15	LUNCH		
		2:15-4:15		GHGT-9 Closing Plenary Panel Discussion - The Challenges Ahead	Diplomat Ballroom
		4:30-6:30	1	CSLF Capacity Building Closing Session: "Understanding Risks Associated with Carbon Capture and Storage" <i>Jim Ekmann - Leonardo Technologies, Inc.</i>	Congressional A&B