

Clean Cities Transportation

Workshop for Almaty

Program

Wednesday, March 30

08:30-09:00 Registration

Session 1

09:00-10:30

Welcome & Introductions

- Clean Air Transportation for Almaty: Welcome and Introductions, *Michael Cohen, U.S. Department of Energy*
- New Opportunity for Almaty, *His Excellency Ahmetzhan Yessimov, Akim of Almaty*
- U.S.-Kazakhstan Bilateral Cooperation, *Michael Snowden, Principal Officer, Consulate General-Almaty, U.S. Mission to Kazakhstan*
- Creating a Roadmap to Clean Cities for Kazakhstan, *Marcy Rood Werpy, Argonne National Laboratory*
- Support for Sustainability, *Sandugash Beisenbekova, Analyst, European Bank for Reconstruction & Development*
- Introductory Remarks, *Assylbek Battalkhanov, Chief of Department of Strategic Planning & Development, KazTransGas*

10:30 – 11:00 BREAK

Session 2

11:00-12:30

NGVs in their Global Context: Opportunities, Challenges, & Strategies

Dr. Jeffrey M. Seisler, CEO, Clean Fuels Consulting

This session provides a worldwide overview and background of natural gas as a vehicle fuel and the range of natural gas vehicle (NGV) technologies available, highlighting the benefits and challenges. Understanding the conditions required to develop NGV programs will provide a perspective for Almaty and Kazakhstan as to what is possible with NGVs.

- World view of NGV growth and opportunities
- NGV Benefits: economics; environmental aspects; safety; energy security & supply
- Health impacts
- Creating the right environment for successful program development

12:30 – 14:00 LUNCH



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Development of IMW Industries dba Clean Energy Compression Corp,

Keynote presentation by Kirk Livingston, Senior Vice President, International Business

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Session 3

14:00 – 15:30

Introduction to NGV Technology: Light and Heavy-Duty Vehicles

Light-Duty Retrofit and Factory Built NGVs: Choosing the Right Technology, *Gert-Jan Rap, Landi Renzo Group*

CNG for Heavy-Duty, *Gert-Jan Rap, RAP Clean Vehicle Technology*

Heavy-Duty Natural Gas Trucks & Buses, *John Burgess, General Manager, Cummins-Westport and Peter Rusinov, Field Service Engineer, Cummins Westport*

This section is aimed at helping both technical and non-technical people get a basic understanding of 'how NGVs work' and some of the different technologies in various applications. Coverage of light-duty retrofit and original equipment manufactured (OEM) vehicles will be provided. Heavy-duty applications including special considerations for urban buses from the manufacturers will be presented. The focus is on compressed natural gas (CNG) but the potential for liquefied natural gas (LNG) and renewable biogas will be included.

- State-of-the-art and 'appropriate' technologies for converting light-duty vehicles
- OEM approaches and concerns
- Deciding on the best technology strategy: Economic and life cycle consideration for choosing NGVs
- Heavy-duty NGV (mono-fueled) technologies
- Urban buses running on CNG
- Safety and training needs

15:30 – 16:00 BREAK

Session 4

16:00 - 17:30

Refuelling Technologies, Strategies, and Basic Economics

16:00 – 16:30 KazTransGas (KTG) Fuelling Station Strategy for Almaty and Kazakhstan

Assylbek Battalkhanov, Chief of Department of Strategic Planning & Development, KazTransGas

KTG has ambitious plans to develop a CNG fuelling station network to support NGV growth in Almaty and beyond. They will describe their strategy and activities that are designed to support the growth of light and heavy-duty commercial and private vehicles

16:30 – 17:30

Fundamentals and Options for Fuelling NGVs, *Paolo Petracchi, Vice-President, CNG Equipment, Dresser Wayne; Domenico Sicilia, CNG Business Development Manager, Dresser Wayne*

Understanding compressor station basics is important in order to create a strategy to develop a viable fuelling infrastructure that can be a foundation for the expansion of the NGV population. Safety, basic sizing

principles, and economical building strategies (for private fleet operators and public stations) will be presented.

- Safety considerations, standards, and training
- Special considerations for urban bus fuelling stations
- Sizing and construction strategies for fleet and commuter station
- Fast fill & slow fill options
- Portable fuelling stations: Mother-Daughter systems

Reception

Close Day 1

Thursday, March 31

08:45-09:00

Recap of Day 1 and Introduction to Day 2, Dr. Jeffrey Seisler

Session 5

09:00 – 10:45

Standards, Codes, Regulations, and Safety for NGVs, Fuelling Stations, and Workshops

Dr. Jeffrey Seisler, Clean Fuels Consulting
Gert-Jan Rap, RAP Clean Vehicle Technology

Understanding and implementing standards, codes, and regulations are the foundation for NGV development. Following an overview of the international standards and regulatory institutions by Dr. Seisler, specific standards and regulations will be presented for vehicles, fuelling stations, as well as maintenance and conversion workshops by TUV Saarland, an internationally known certification and training institute.

- Distinction between standards, codes, and regulations
- The global standards and regulatory system in perspective: National, European, and United Nations
- Detailed view of vehicle regulations: OEMs and conversions
- Detailed view of fuelling stations standards and regulations
- Special concerns about CNG cylinder safety and inspection
- State-of-the-art for maintenance and conversion workshops standards and best practices
- Initial and on-going training requirements

10:45 – 11:00 BREAK

Session 6
11:00-12:15

NGV Implementation Strategies

Marcy Rood Werpy, Argonne National Laboratory
Dr. Jeffrey Seisler, Clean Fuels Consulting

The fundamental tools and their application (and potential mis-application) will be highlighted, to combine theory and practical rules of policy development and implementation. Specific examples of what countries have done successfully and what they have done incorrectly will be presented and discussed.

- Basic tools of government & developing a balanced, win-win strategy
- Incentives (financial and non-financial)
- Mandates
- Role in standards development
- Potential for funding research and development and demonstration
- Leadership by example
- Public relations and communications
- Discussion about the tools in the 'Kazakhstani Context'
- Integrating the NGV program into the Almaty transportation plan

12:15-12:45

Developing Compressed Natural Gas (CNG) as an Alternative Fuel for Vehicles in Kazakhstan – A BG Supported Initiative

Bernard Eyre, Commercial Manager, BG - Kazakhstan Group

At the request of the President Nazarbaev, BG Group developed a “Natural Gas Study” which identified CNG development in Kazakhstan as one of the significant opportunities. BG group, having extensive knowledge in establishing NGV markets in various countries, will share their insights and experiences gained as well as lessons learned as they relate to the successful launching of the CNG market in Kazakhstan.

12:45 – 14:15 LUNCH

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Session 7

14:15 – 15:45

The Clean Air Transportation Roadmap for Almaty

Dr. Jeffrey Seisler, Clean Fuels Consulting

This will be an interactive session to gain the understanding of very specific perspectives of stakeholders. Information provided in earlier conversations by stakeholders will be provided, giving all participants a basic background that has shaped the initial Roadmap. Additional information and questions will be raised. The training team as a whole will engage in the discussion, moderated by Dr. Seisler, to build upon the initial Roadmap.

- The structure of the Roadmap framework
- The process of the Roadmap: Identify the steps to a sustainable CNG bus program
- The strategic roles of each stakeholder in creating a sustainable CNG bus program
- The action plan and schedule to achieve specific achievable targets
- Expanding a sustainable NGV program for Almaty to other cities of Kazakhstan

15:45 – 16:15 BREAK

Session 8

16:15 – 17:30

Stakeholder Panel Discussion

Moderators: Dr. Jeffrey Seisler, Clean Fuels Consulting

Stanislav Kim, Head of Energy and Environment Unit, United Nations Development Program

Panelists: Askar Toybayev, Deputy Director, Public Transit and Road Management

Talgat Abdrakhmanov, Almatyelektrotrans

Assylbek Battalkhanov, Chief of Department of Strategic Planning & Development, KazTransGas

Gulmira Burkutbayeva, Almaty Development Center

Gert-Jan Rap, RAP Clean Vehicle Technology

The final session of the workshop will involve the various key stakeholders in an open discussion amongst panelists and the audience for an interactive exchange of opinions, options, challenges and opportunities to move forward with clean air buses for Almaty, an improved transportation network, and for future steps for possible expansion of the NGV program and development of a Clean Cities program.

Friday, April 1

Technical Tour of Almatyelektrotrans CNG Bus Fuelling Station

10:30 – Noon

(Details to be provided)

A brief tour will be organized on Friday morning for those people interested in a first-hand look at the new CNG fuelling station and repair workshop that will service the first 200 CNG buses in Almaty. Natural gas buses will take people from the Intercontinental Hotel to the bus fuelling station and vehicle workshop. A brief tour of the facilities provides a first-hand look at the latest CNG facility in Almaty.



Thank you to Dresser Wayne for their support.

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