

Regional Climate Change Investment Conference

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Who are Cummins Westport ("CWI")?

- We sell gas engine systems for buses and trucks
- Cummins Westport is a Joint Venture formed in 2001 between Cummins Diesel and Westport Innovations
- Cummins Diesel is the world's largest manufacturer of heavy-duty engines
- Westport Innovations is a gas systems technology developer from Canada
- Headquarters in Vancouver, Canada. Engines are built in Indiana, U.S.
- Local Hungarian distributor does all local sales and engine servicing

What is “Gas”?

- Compressed Natural Gas (CNG)
 - A fossil fuel composed mostly of the fuel methane, but with small amounts of other gases.
 - 65-95% CH₄.
- Liquefied Natural Gas (LNG)
 - 95% CH₄.
- Liquefied Petroleum Gas (LPG)
 - LPG is a by-product of petroleum refining, C₃H₈.

CWI Engine Products



CNG/LNG and LPG Engines:

B+ Gas & LPG – inner city delivery trucks, city buses, yard vehicles

C+ Gas – larger delivery trucks, waste haulers, articulated buses

L+ Gas (mid-2004) – inter-city delivery, waste haulers

L Gas Plus



Benefits of CNG for Transport

- Particulate Matter reductions of 90%
- Noise reductions of up to 15%
- CO₂ reductions of 20-25% (well-to-wheel)
- NO_x reductions up to 30%
- Much easier to monitor driver fuel use
- Use local CNG supply

Why Use CWI Gas Engines?

- Cummins world-wide distribution and support
- Independent, loose engine sales for re-powers of older vehicles
- Fully electronic for reliability and gas quality variance
- The right power for trucks and buses
- Much quieter and cleaner than diesel

European Sales in 2002/03

- Sales to Czech Republic, France, Netherlands and Russia
- Applications include: CNG buses, waste haulers, forklifts
- Engine installations supported locally by independent distributors

Ekobus in Czech Republic

- 32 buses running in Usti nad Labem by Csad
- >50,000 km on each bus
- Successful cost & emissions monitoring program
- Good reports from drivers & passengers
- Program subsidized by State government



Waste Hauler in France

- 2 trial vehicles built for city of Paris
- Engines have around 7000 hours successful operation
- Maintenance and operations support done locally after training by CWI
- Excellent (clean, quiet) vehicle for small city streets



Current Hungarian CNG Market

- 2 CNG stations: Budapest (Budapest 1031, Gázgyár u.1), Szeged (DÉGÁZ Field)
- 80 CNG buses at Tisza Volán in Szeged, and Hajdú Volán in Debrecen
- CNG prices about $\frac{1}{2}$ of diesel prices

Hungary CNG Pipelines

HUNGARIAN ENERGY OFFICE



Needs of Hungarian CNG Transport

- E.U. vehicle emissions regulations
- Cleaner city air
- Carbon emissions reduction
- New buses to attract more riders and compete with cars
- Longer-term municipality Transport Plan and dedicated municipal budgets

Challenges for Hungarian CNG Transport

- Gas buses more expensive than diesel
- Specific regulations needed for CNG infrastructure and vehicles
- Limited retail gas infrastructure
- Expense of new gas stations
- Low budgets and ridership revenues for fleet operators
- Public transport upgrades not included in National Development Plan for EU Structural Funds

How to Succeed?

- Pool financing between all available resources (state central & environmental funds, municipalities, EU Structural Funds, outside banks, private operators)
- Create a government mandate that requires operators to use CNG + 5 year alternative fuel transportation plan
- Specify budgets for municipal fleet upgrades
- Make consistent and clear gas regulations
- Lower state gas taxes than diesel or petrol to reduce pay-back time on investment

Thank You

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