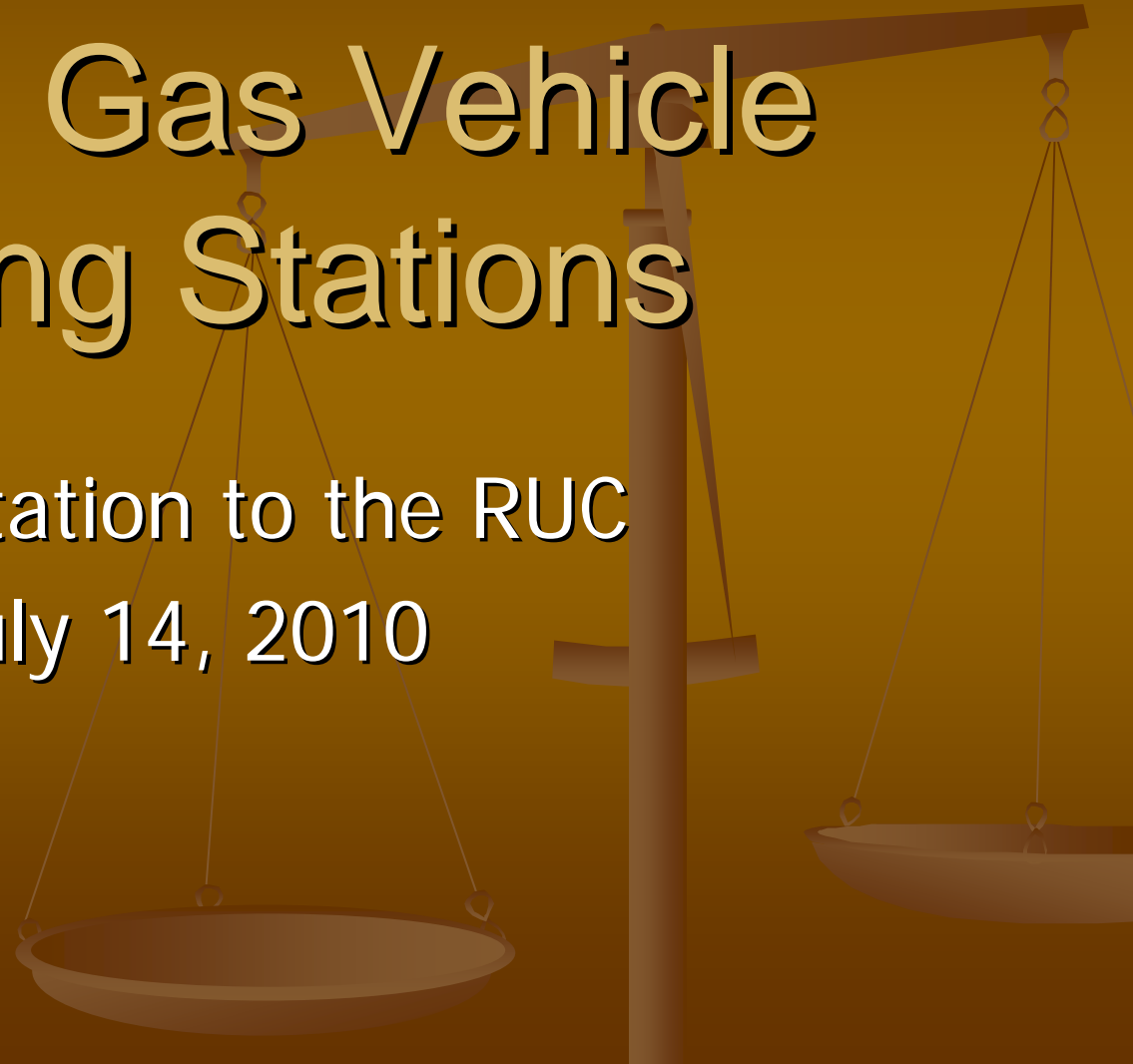


RUC ITEM #080927

Natural Gas Vehicle Fueling Stations

Presentation to the RUC

July 14, 2010

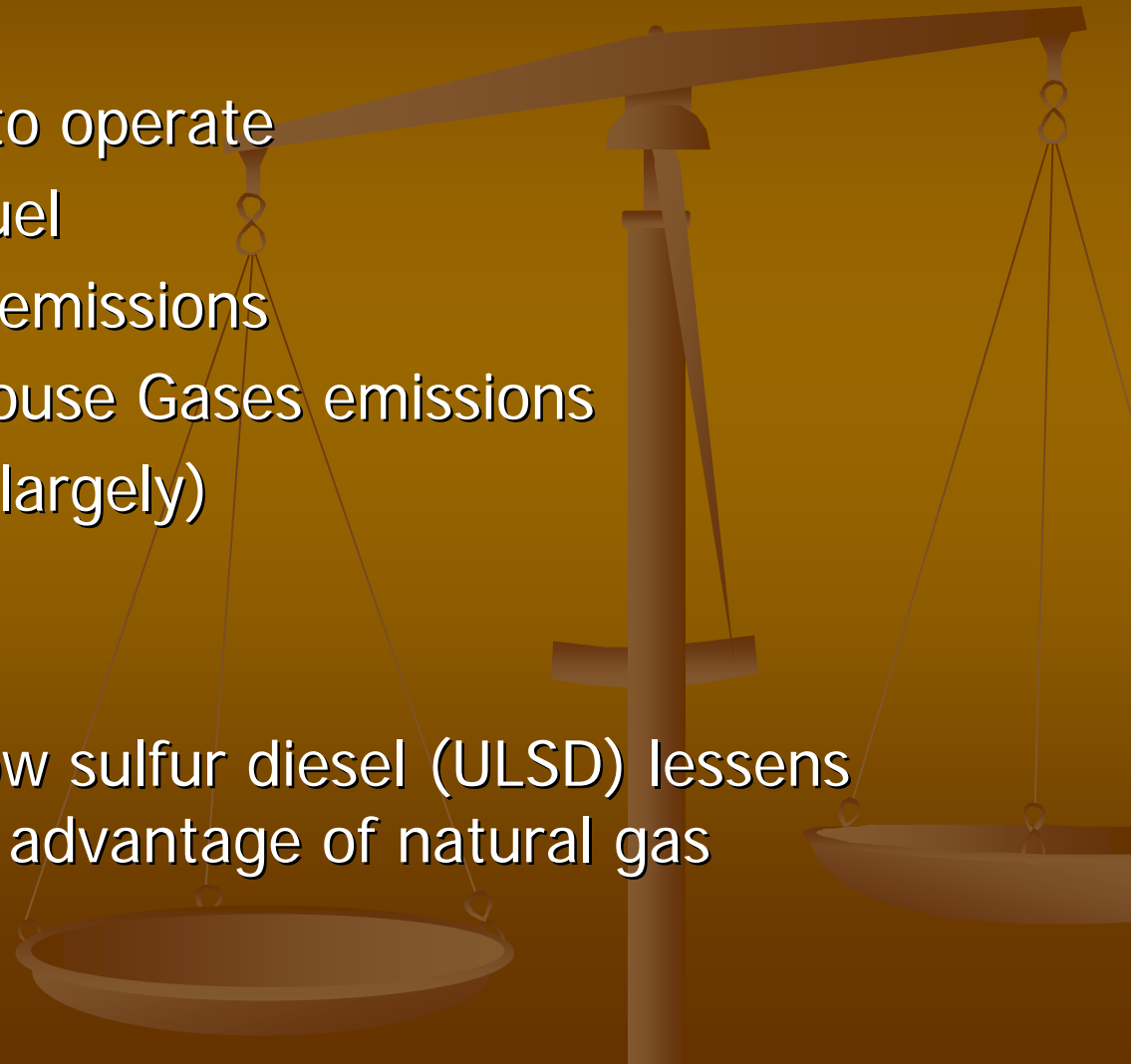


Why natural gas vehicles?

■ Advantages:

- More economical to operate
- Cleaner burning fuel
- Fewer particulate emissions
- Reduced Green House Gases emissions
- Domestic source (largely)
- Quieter

Note: Use of ultra low sulfur diesel (ULSD) lessens the emissions advantage of natural gas



Why natural gas vehicles?

- Advantages:
 - Distribution efficiency / safety
 - CNG Vehicle availability
 - Fuel flexibility (hybrid applications)
 - Home refueling (slow fill)
 - Transition fuel to hydrogen



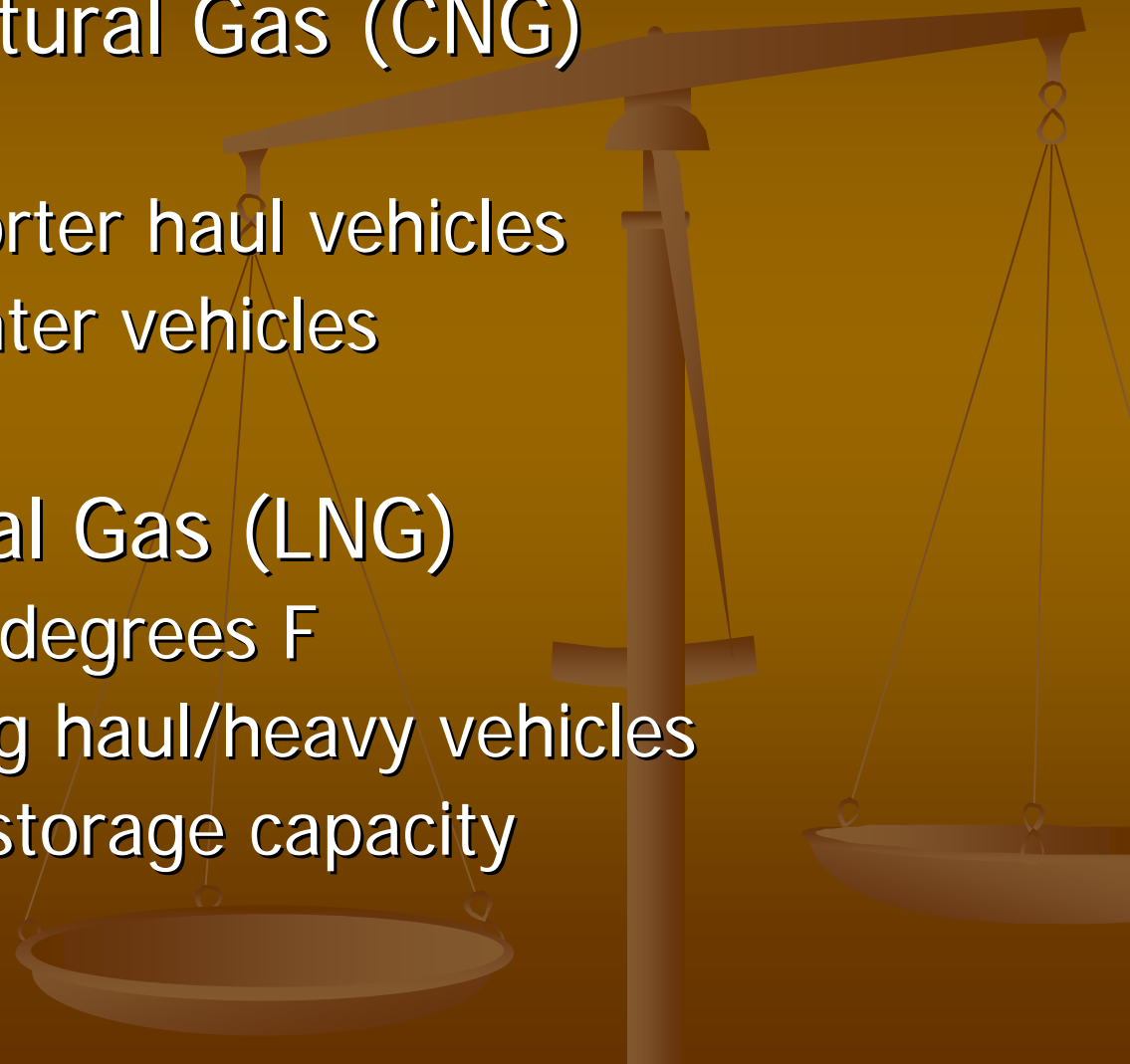
Why natural gas vehicles?

- Disadvantages:
 - Few number of fueling stations
 - Higher cost of fueling stations
 - Reduced vehicle driving range
 - Higher vehicle initial costs
 - Higher life-cycle cost
 - Reduced vehicle cargo space



NGV Options

- Compressed Natural Gas (CNG)
 - Fill to 3600 psi
 - Suitable for shorter haul vehicles
 - Suitable for lighter vehicles
 - Simpler
- Liquefied Natural Gas (LNG)
 - Cooled to -240 degrees F
 - Suitable for long haul/heavy vehicles
 - Increased fuel storage capacity



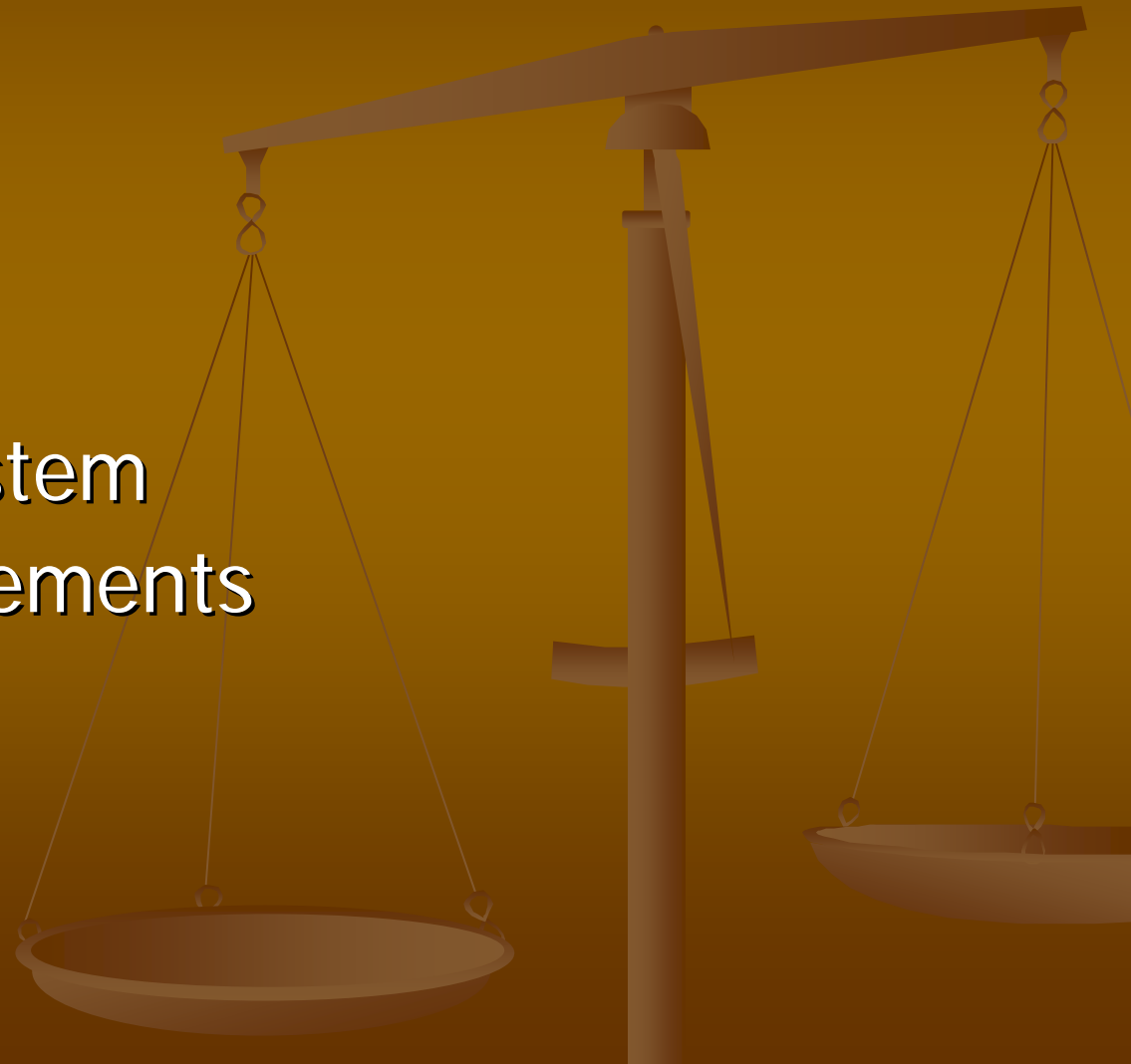
Key Markets for NGV

- Mass transit
- Airport shuttles
- Shared ride (taxis)
- Refuse sector



Key Fueling Station Components

- Compressor
- Dispenser
- Storage sphere
- Canopy, etc.
- Card reader System
- General improvements
- Land
- LDC connection



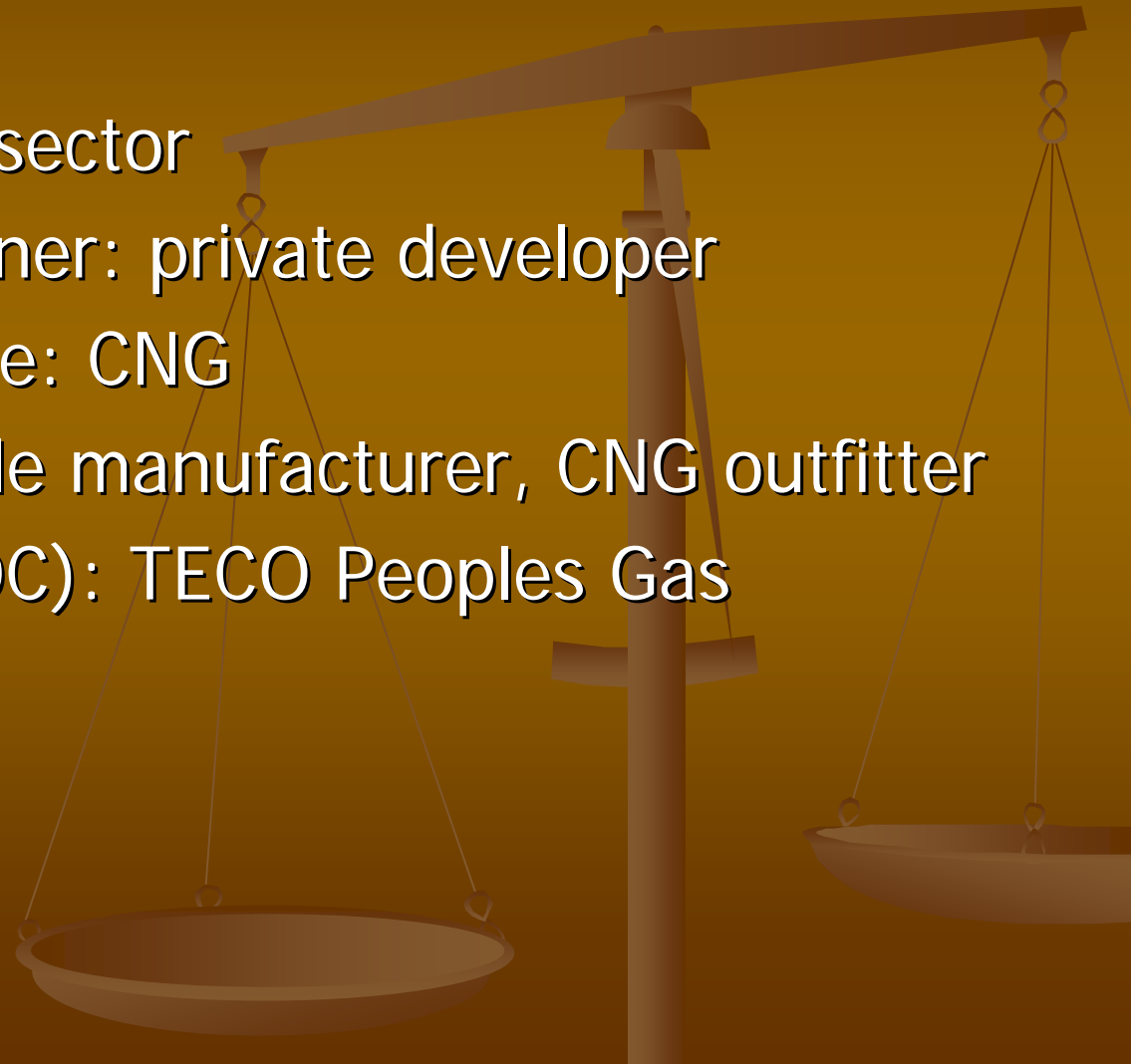
Key Cost Elements

- Compressor
- Dispenser
- Storage sphere
- Canopy, etc.
- Card reader System
- General improvements
- Land
- LDC connection



NGV Enabling Models

- Ft. Lauderdale
 - Market: refuse sector
 - Fuel station owner: private developer
 - Fuel station type: CNG
 - Partners: Vehicle manufacturer, CNG outfitter
 - Fuel source (LDC): TECO Peoples Gas

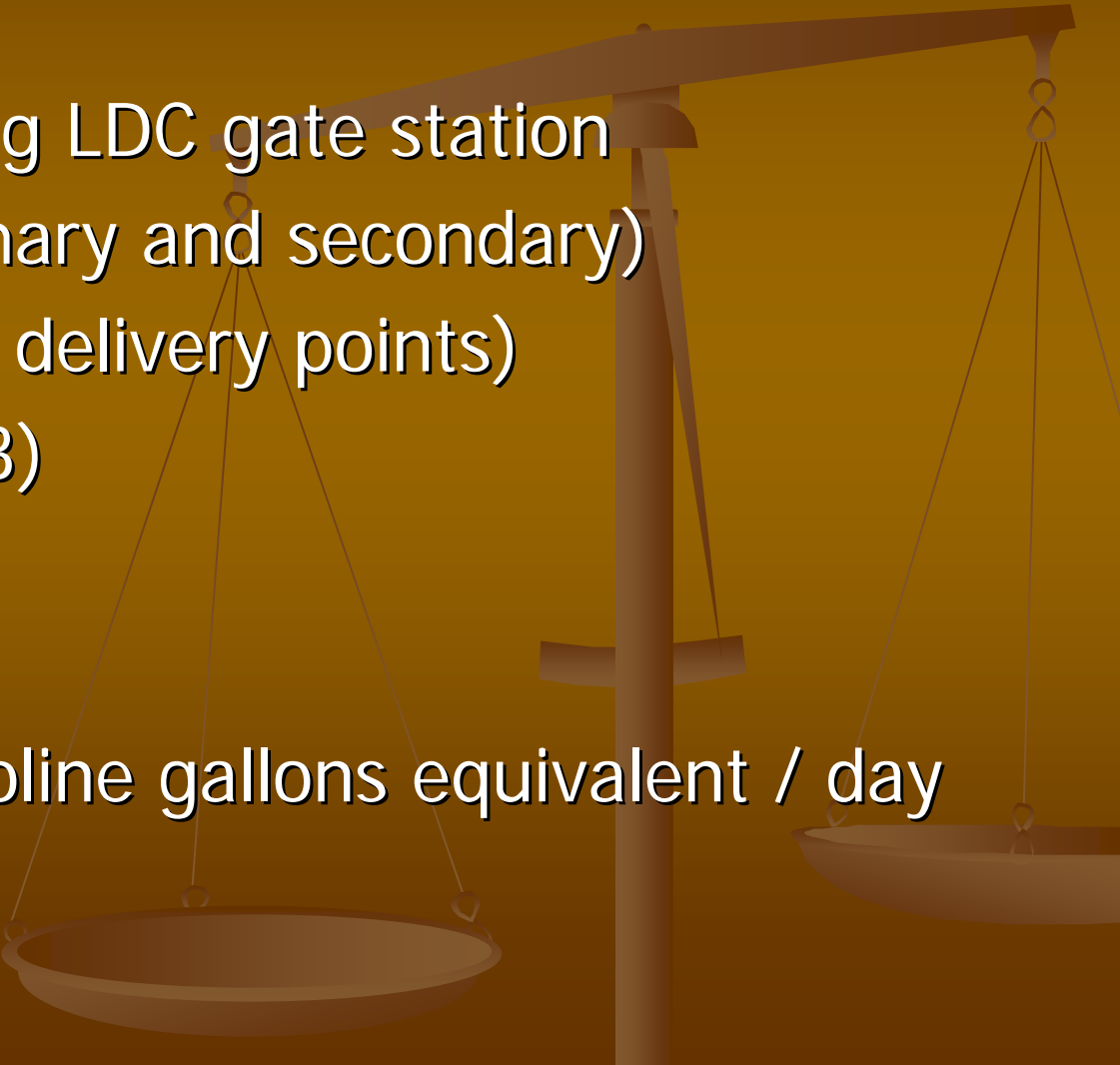


NGV Enabling Models

- Clearwater
 - Primary market: refuse sector
 - Secondary market: transportation
 - Fuel station owner: City of Clearwater
 - Partners: Engineering/design/procurement
 - Fuel station type: CNG
 - Fuel source (LDC): City of Clearwater



Clearwater Project Description

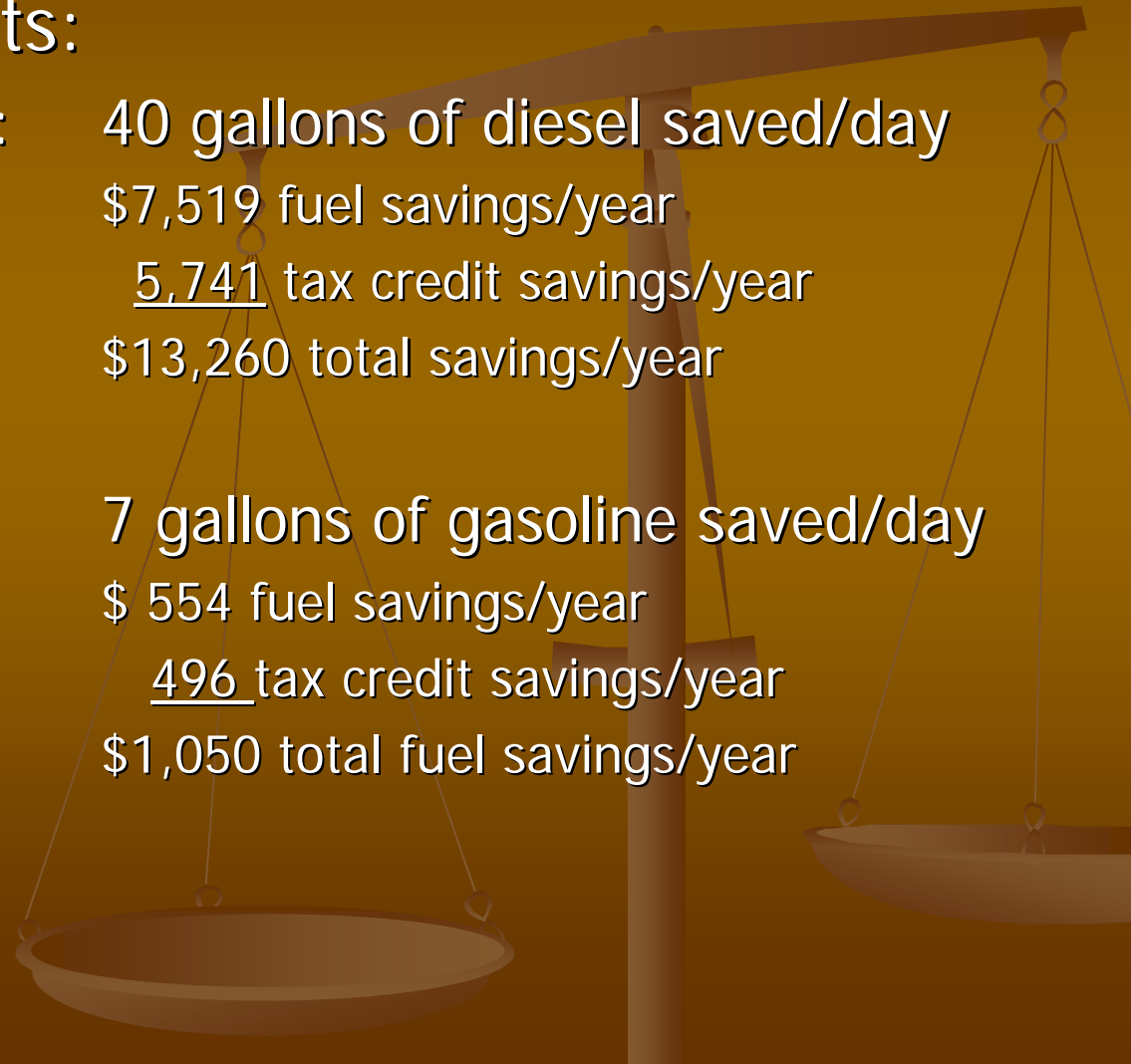
- City owned land
 - Adjacent to existing LDC gate station
 - Compressors (primary and secondary)
 - Fuel dispensers (6 delivery points)
 - Storage spheres (3)
 - Canopy etc.
 - Card reader
 - Capacity: 730 gasoline gallons equivalent / day
- 

Clearwater Project Description

■ Anticipated Benefits:

■ Per Heavy vehicle: 40 gallons of diesel saved/day
\$7,519 fuel savings/year
5,741 tax credit savings/year
\$13,260 total savings/year

■ Per Light vehicle: 7 gallons of gasoline saved/day
\$ 554 fuel savings/year
496 tax credit savings/year
\$1,050 total fuel savings/year



Clearwater Project Cost

- Salaries: \$ 39,500
- Supplies: 3,000
- Equipment: 915,111
- Contractual Services: 542,389

Total Cost: \$1,500,000



Clearwater Project Funding

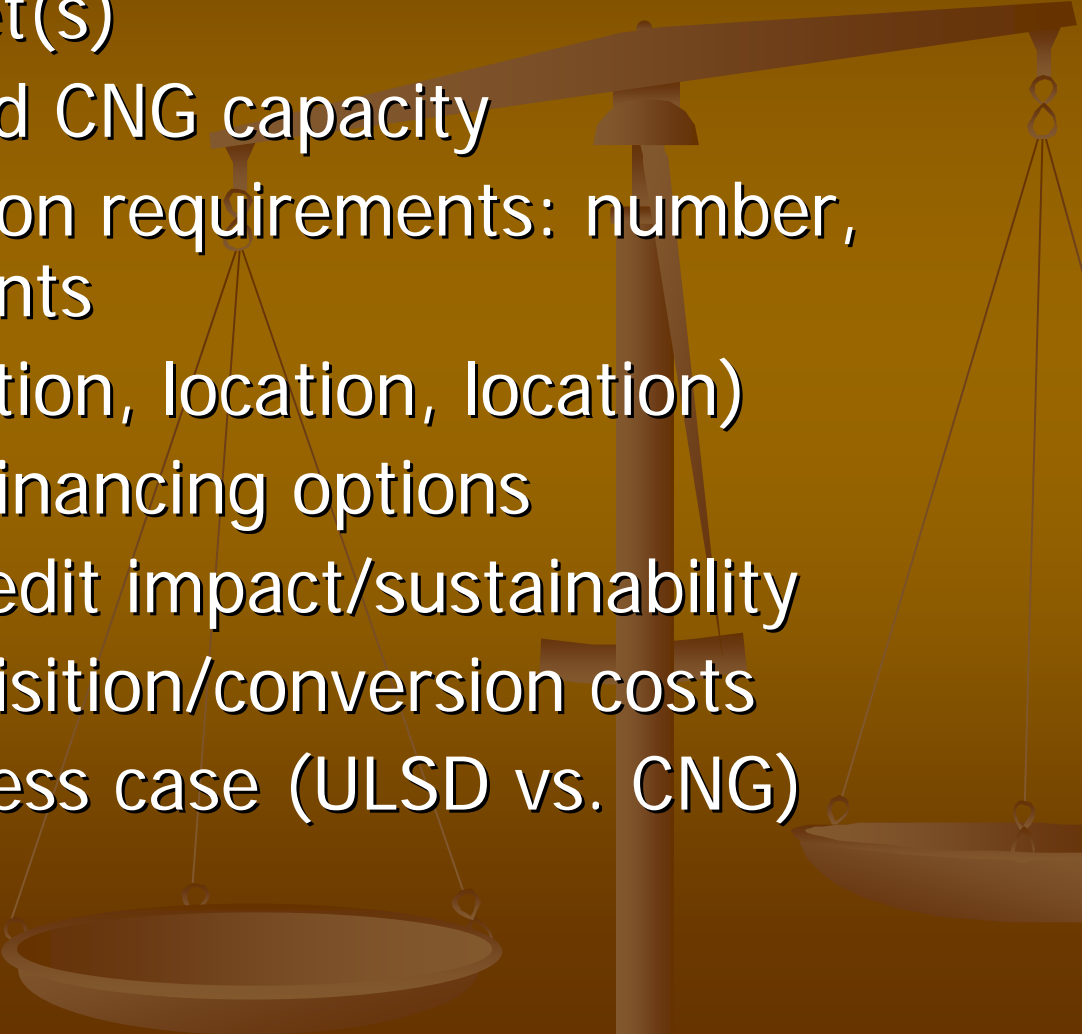
- Grant: \$ 450,000
- Clearwater Gas* 1,050,000

Total Funding: \$ 1,500,000

* note: a unique funding opportunity



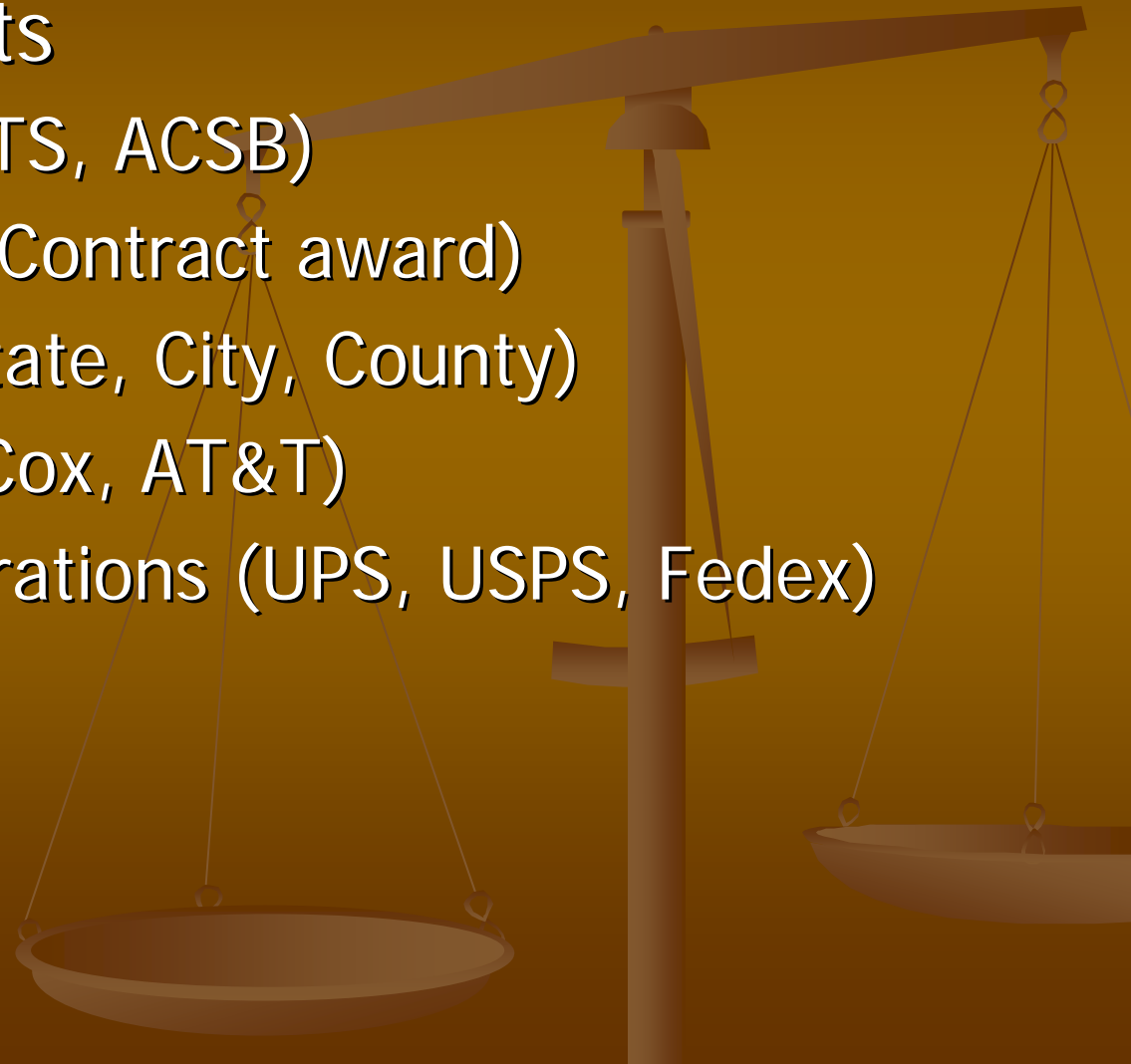
An NGV Option for Gainesville?

- Identify the market(s)
 - Determine required CNG capacity
 - Determine fill station requirements: number, location, components
 - Identify land (location, location, location)
 - Identify partners/financing options
 - Understand tax credit impact/sustainability
 - Identify CNG acquisition/conversion costs
 - Develop the business case (ULSD vs. CNG)
- 

An NGV Option for Gainesville?

■ Potential Markets

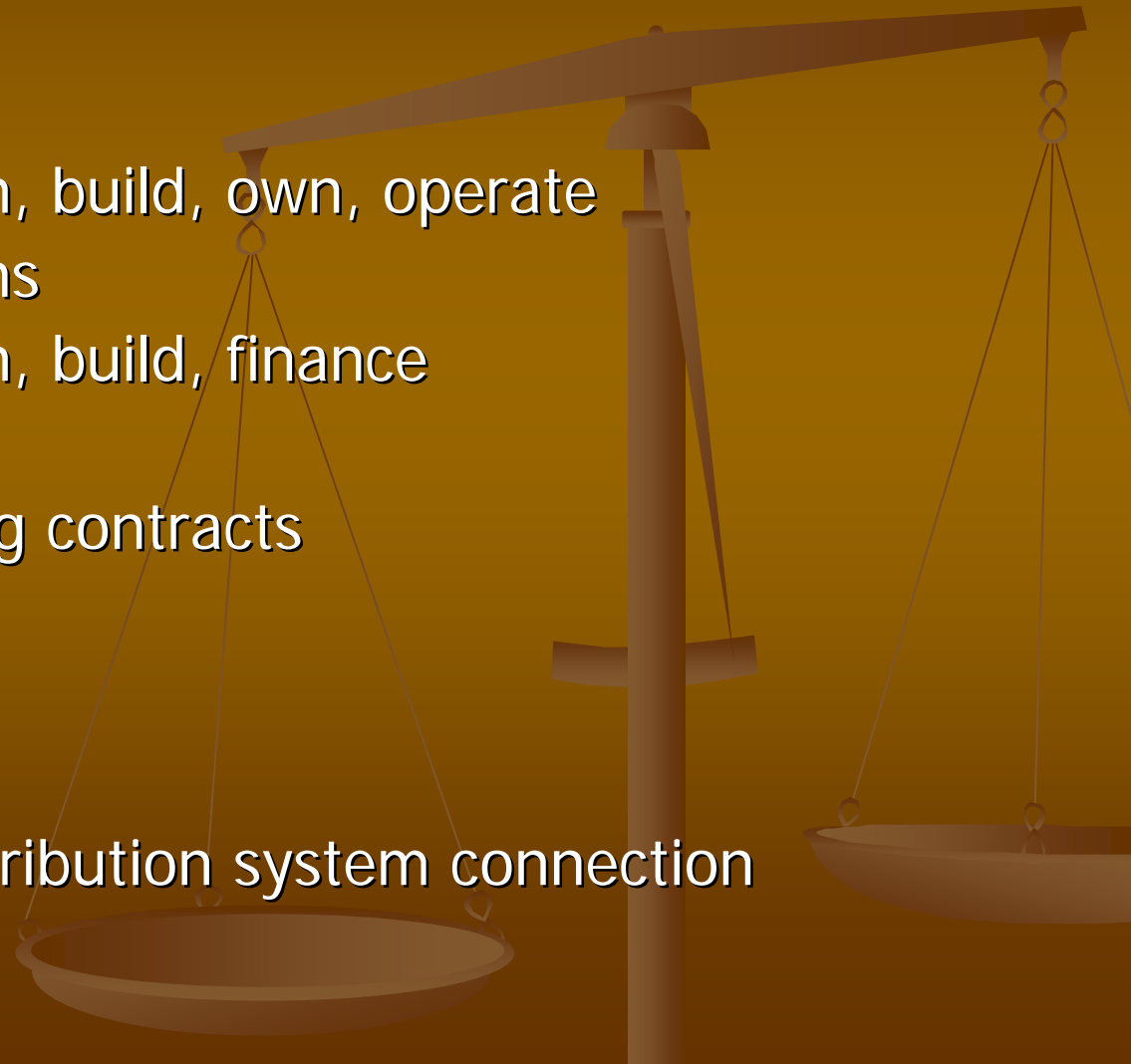
- Mass transit (RTS, ACSB)
- Refuge sector (Contract award)
- Government (State, City, County)
- Utilities (GRU, Cox, AT&T)
- Large fleet operations (UPS, USPS, Fedex)



An NGV Option for Gainesville?

■ Potential Partners

- Fill station(s)
 - engineer, design, build, own, operate
- Vehicle conversions
 - engineer, design, build, finance
- Fleet Operators
 - long term fueling contracts
- Government
 - grants
- LDC
 - Co-location, distribution system connection



Business Case Considerations

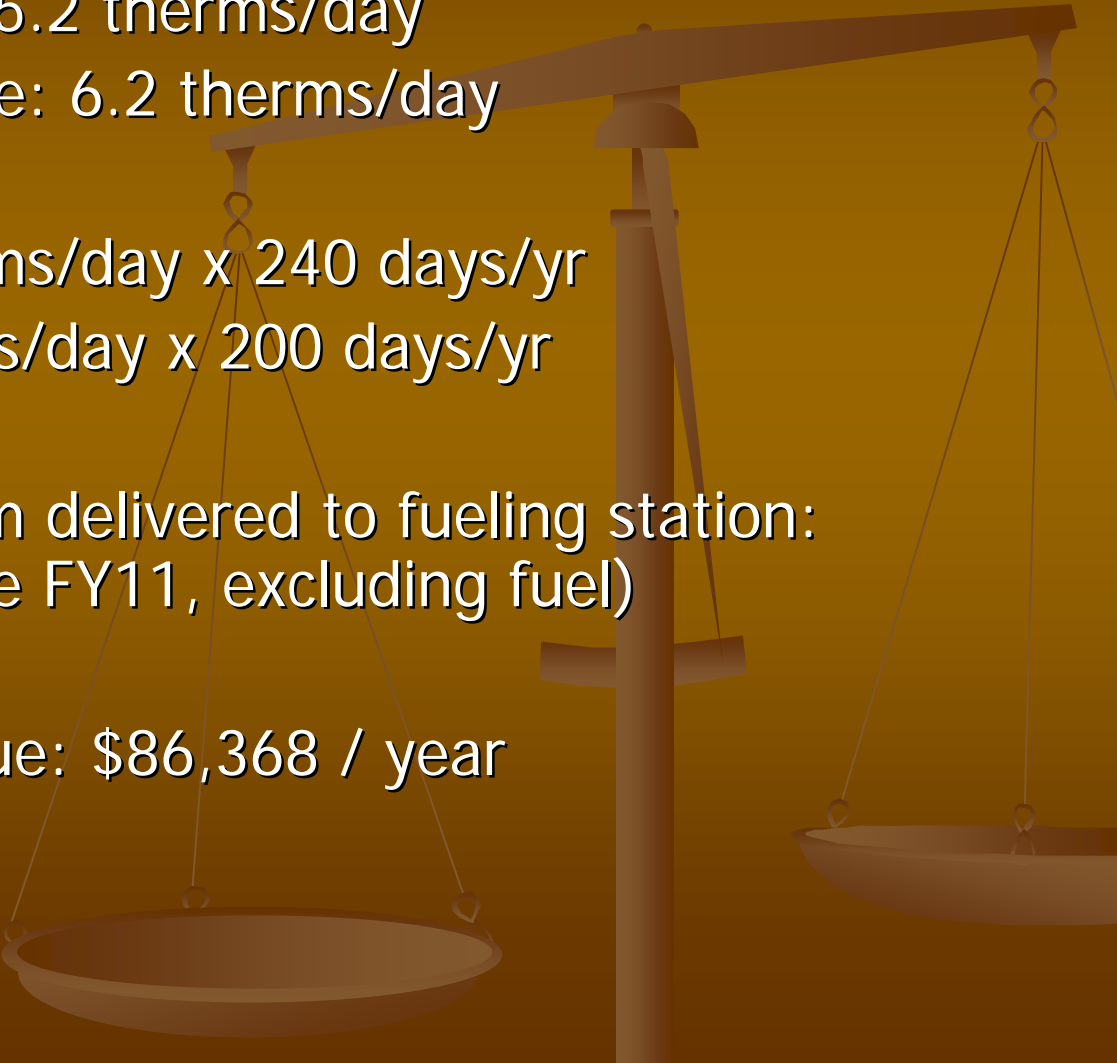


- Clearwater scale (and costs) may satisfy market sector start-up phase
- Build out to satisfy market sector needs may require significant added cost.

Example: the projected cost to build a fueling facility for 100 CNG heavy vehicles/buses may approximate \$4,125,000

- Use Ultra-low sulfur diesel fuel or B20 for comparison purposes.
- Focus on heavy vehicle application
- Capital costs for fueling station by others

Economic Impact to the LDC

- Heavy truck usage: 55.2 therms/day
 - Light-duty truck usage: 6.2 therms/day
 - 15 units @ 55.2 therms/day x 240 days/yr
 - 20 units @ 6.2 therms/day x 200 days/yr
 - GRU charge per therm delivered to fueling station: \$.3864 (proposed rate FY11, excluding fuel)
 - Projected GRU revenue: \$86,368 / year
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Staff Recommendation

- Identify likely market participants
 - Identify grant opportunities
 - Develop RFP to solicit private sector partners
 - Leverage existing industry expertise to deliver CNG fuel
 - Minimize taxpayer and/or ratepayer financial risk
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