

# Propane Conversion Strategies

Legislative Energy Commission

January 22, 2015

# 2014 Legislative Request

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Investigate the feasibility of converting propane gas users to natural gas or other alternative sources of energy

-- Laws of MN 2014, chp. 254, sec. 25

# Outline

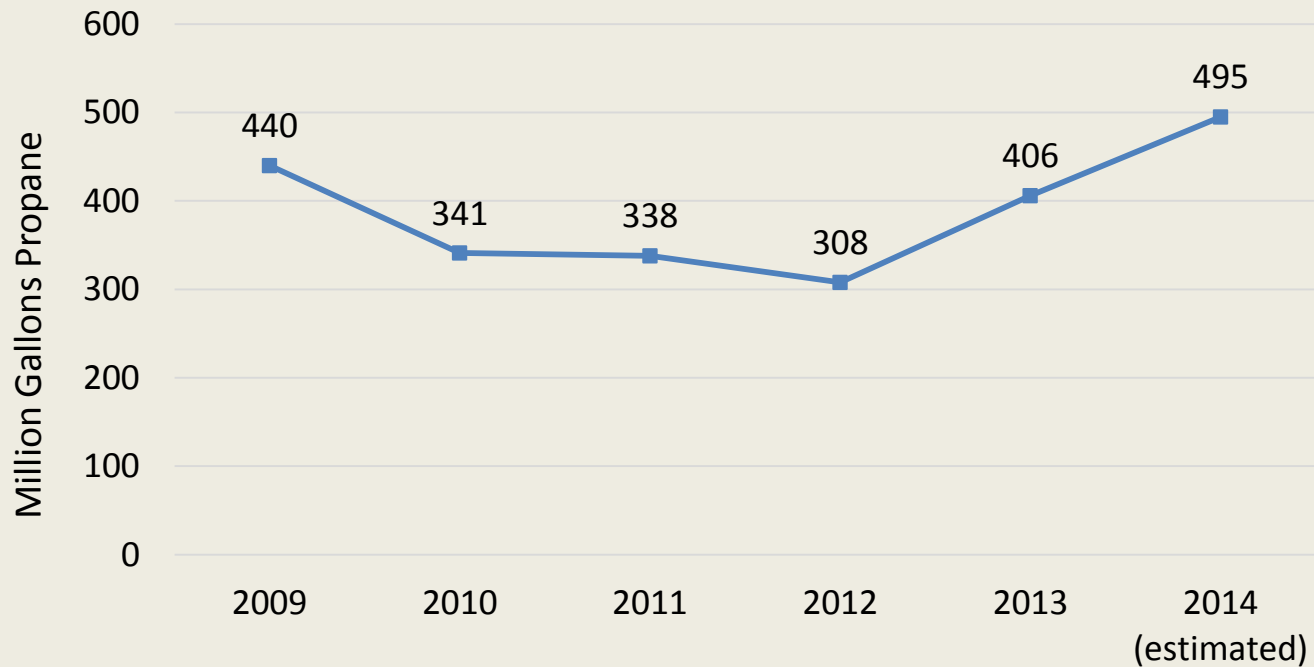
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1. Propane in Minnesota
2. Propane alternatives
  - a. Conservation
  - b. Natural gas system expansions
  - c. Delivered and distributed resources
    - Solar thermal
    - Woody biomass
    - Off-peak electric thermal storage
    - District heating and waste heat recovery

# Propane in Minnesota

# Propane in Minnesota

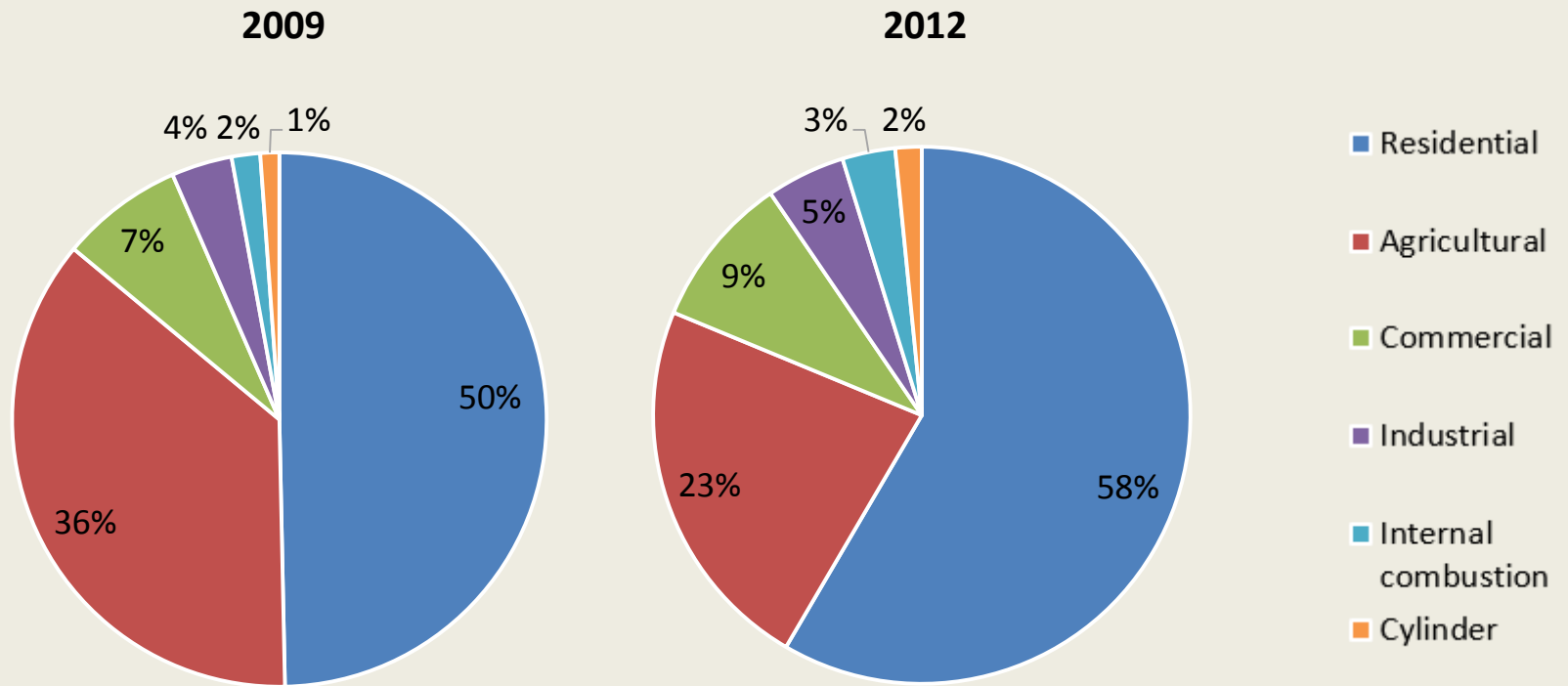
Average sales: 400 million gallons/year



More than \$600 million/year

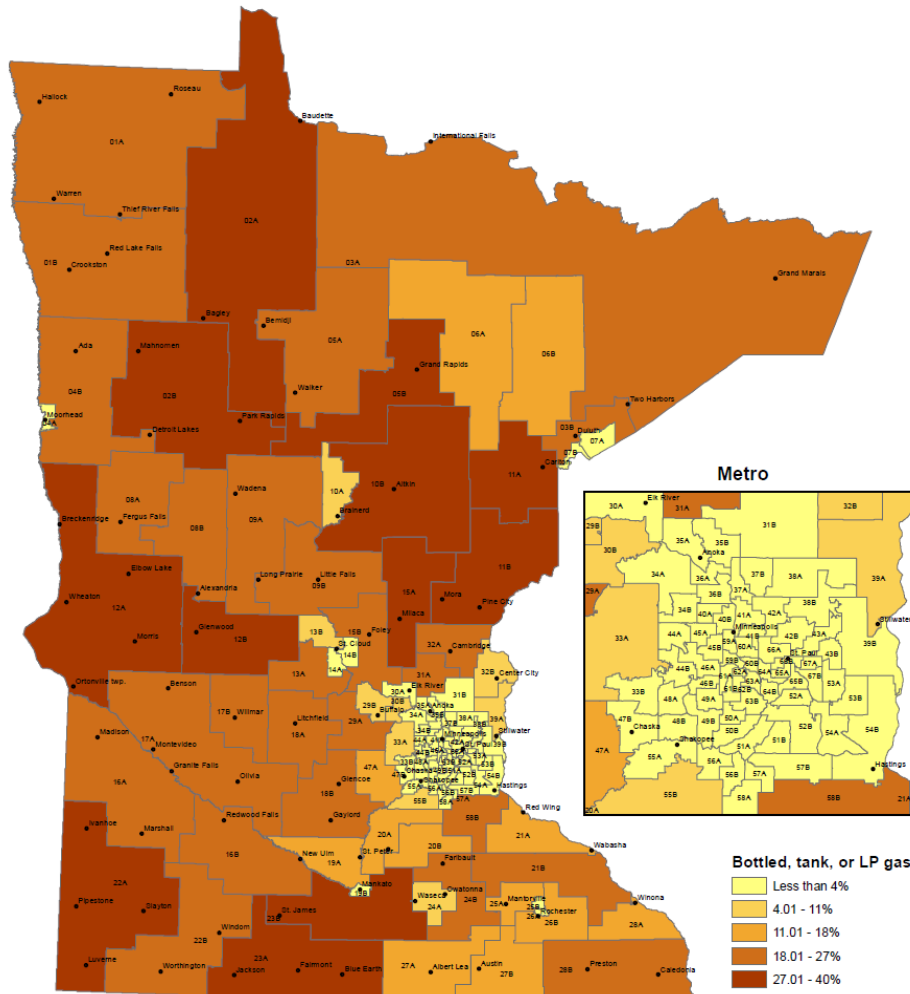
# Propane in Minnesota

## Propane Sales by Sector



# Propane in Minnesota

- Approx. 10% of Minnesota households primarily heat with bottled, tank, or LP gas



# Propane in Minnesota

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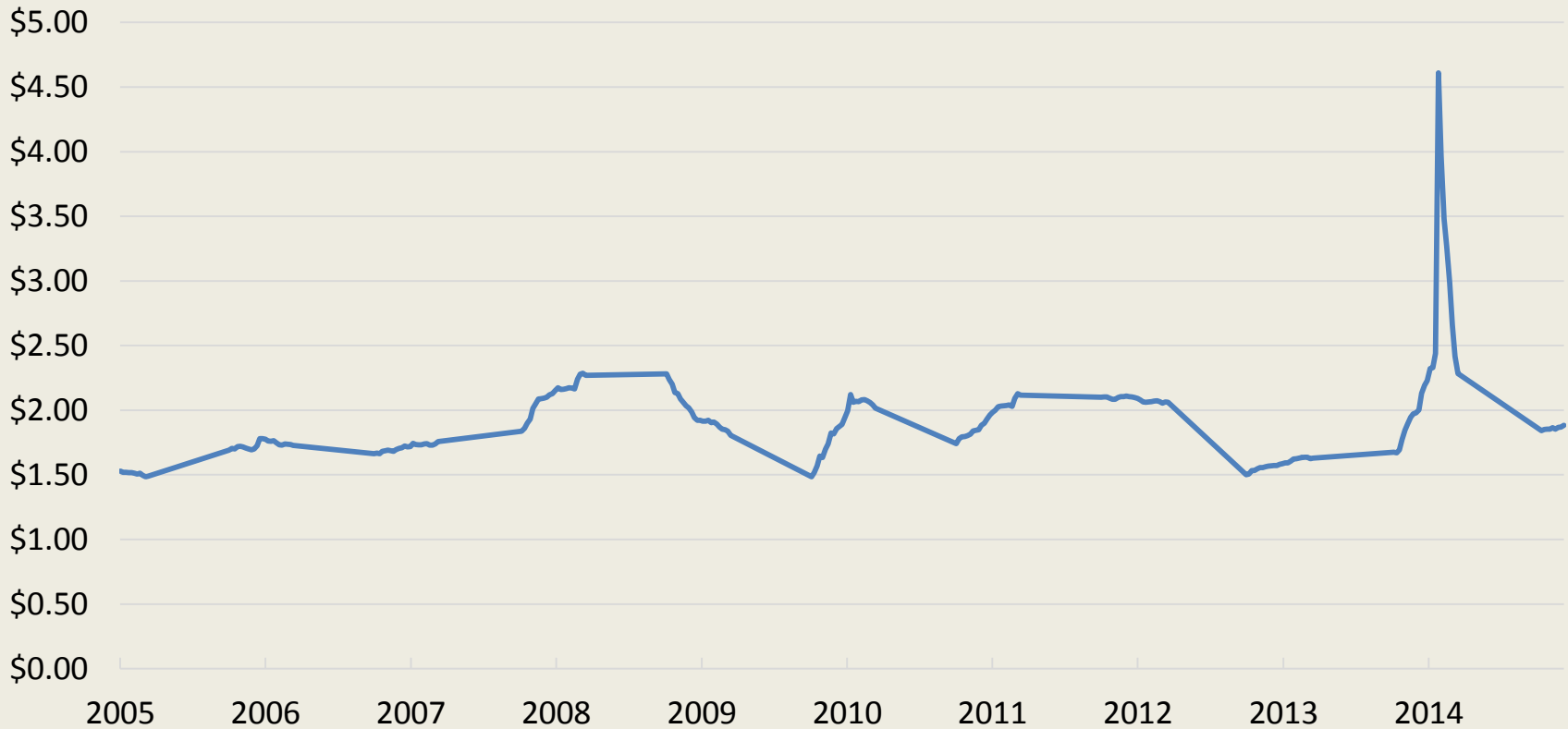
## 2013-14 Shortage

- Highest demand in a decade
- Large, late and damp corn harvest
- Frigid weather
- Use by interruptible natural gas customers
- Cochin pipeline maintenance and shutdown



# Propane in Minnesota

**Minnesota Residential Propane Price  
(dollars per gallon, October-March)**



# Propane in Minnesota

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## Energy Assistance for Low-Income Households

1. Pre-buy a portion of Energy Assistance propane
  - Purchase with state funds or a credit, deliver after 10/1, reimburse with federal funds;
  - One-time state appropriation, then reserve federal funds for following summers; or
  - Entirely with state funds

# Propane Alternatives

# Alternatives: Conservation

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## Key Challenges

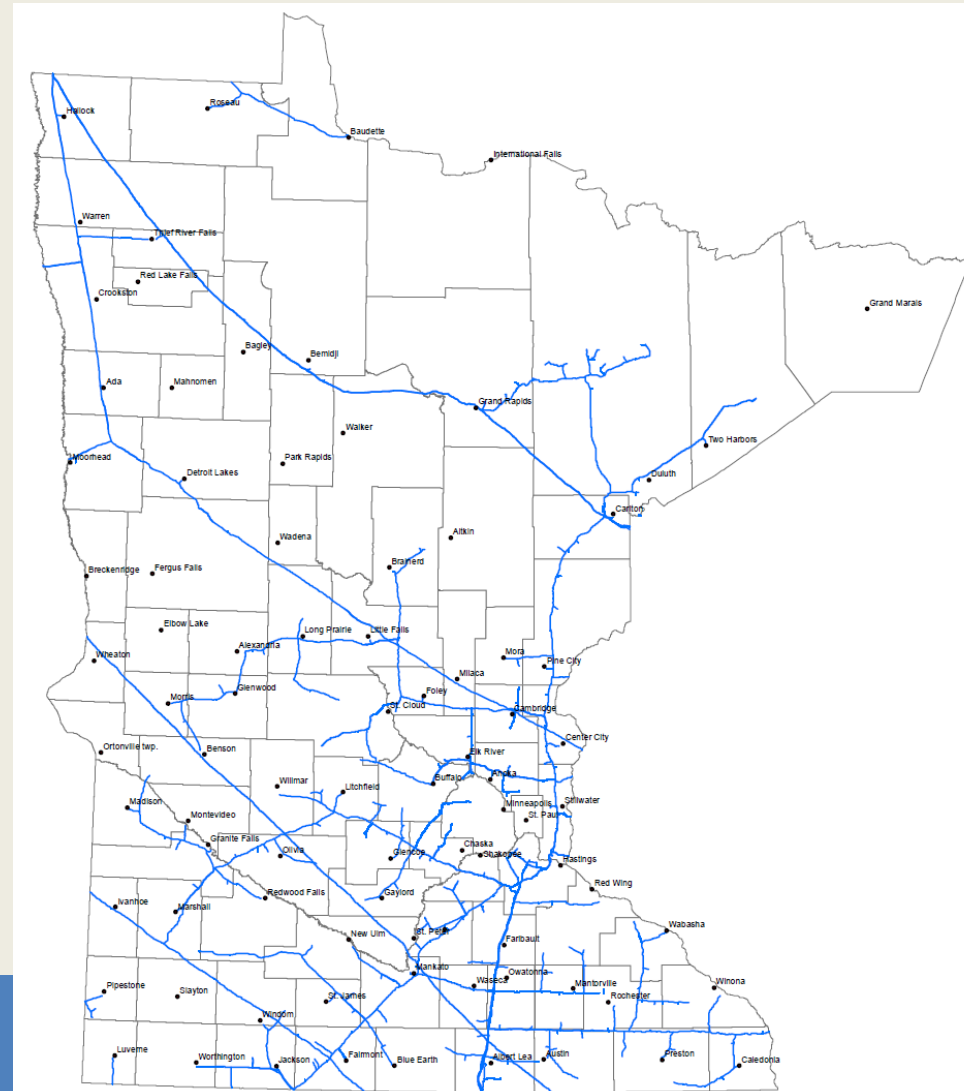
### Up-front cost

2. Create Rural Heating Conservation Program
3. Additional state funding for Weatherization Assistance Program

# Alternatives: Natural Gas

## Interstate Natural Gas Pipelines

- No universal gas service requirement
- Cost of expanding the system must be covered by new customers



# Alternatives: Natural Gas

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## Key Challenges

### System costs

4. Allow costs to be shared across utility customers

### Customer costs

5. Create state tax credits toward appliance conversion costs
6. Allow customers to finance costs with PACE or similar mechanism

# Alternatives:

## Delivered & Distributed, General

- Solar thermal
- Woody biomass
- Off-peak electric thermal storage
- District heating and combined heat and power
  
- Minnesota resources

# Alternatives: Delivered & Distributed, General

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## Key challenges

### Up-front costs

7. Rebates through Rural Heating Conservation Program
8. Local Energy Infrastructure Loan Program
9. Grants or tax credits for alternative heating equipment
10. Increase access to the existing Renewable Energy Equipment Grant Program

### Lack of awareness/understanding

11. Trainings on installation and maintenance



Alternatives:  
Delivered & Distributed, General

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CSEO Straw Man Proposal

12. Establish statewide renewable thermal goal

# Delivered & Distributed Alternatives: Solar Thermal

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Key challenges

Installation costs

13. Streamline permitting

14. “Solar ready” building requirements

# Delivered & Distributed Alternatives: Woody Biomass

## Key challenges

Technical analysis for larger systems

15. Continue state funding for tech. assistance and training



# Delivered & Distributed Alternatives: Off-Peak Electric Thermal Storage

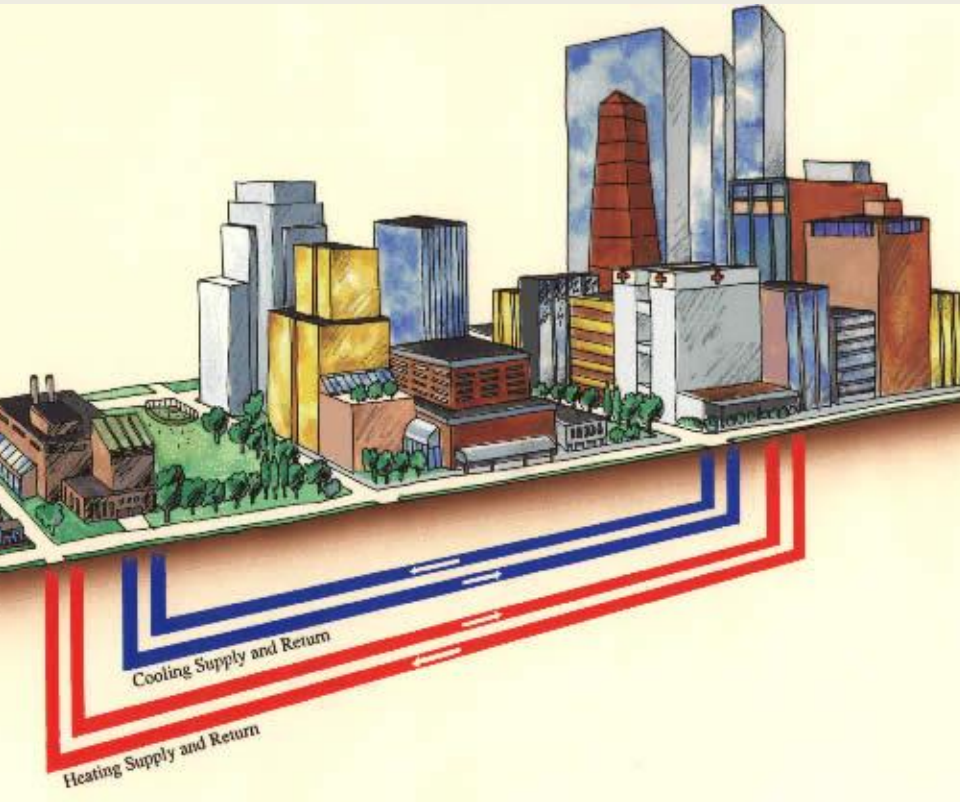
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- Combine storage air or water heat
- Lower electric rates during periods of low demand



# Delivered & Distributed Alternatives: District Heating and Waste Heat Recovery



## Key challenges

### Financing gaps

16. Create revolving loan fund
17. Provide state bonding for district energy systems

# Delivered & Distributed Alternatives: District Heating and Waste Heat Recovery

## CSEO Straw Man Proposals

18. Require consideration of CHP in utility integrated resource planning
19. Require utilities to promote CHP through Conservation Improvement Program
20. Include a CHP goal in the Renewable Energy Standard

Thank you