

TULANE UNIVERSITY

# Transportation Working Group: CAP Scenarios



September 30, 2014

## Commuter – Low Investment

Description: Invest in commuter incentives to reduce single occupant vehicle (SOV) commuting. Key initiatives include:

- Transit incentive (paid passes/rides)
- Additional shuttle service
- Commuter incentives & marketing,
- Staff support (0.5->1 FTE)
- Additional bike infrastructure (grows to \$50,000 in 2050)

- **Capital (2014\$)**
  - \$10,000/y in 2015 growing to \$50,000/y in 2050
- **O&M (2014\$)**
  - \$535,000/y in 2015 growing to \$940,000/y in 2050 (\$550,000/y over BAU)
  - Savings in reduced downtown parking of \$110,000 in 2050
  - Net of \$440,000/y in 2050 (over BAU)
- **Change in Demand**
  - Reduction of SOV by 10-15%
- **Change in Supply**
  - Increase programs, shuttle service
- **Impact on GHG Emissions**
  - Reduce Scope 3
  - Increase Scope 1
  - Net reduction (relative to BAU) of **18%**
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$693**

## **Commuter – Medium Investment (Live/Work)**

Description: Invest in commuter incentives to reduce single occupant vehicle (SOV) commuting. Additional investments and programs to promote students and employees living close to campus. Key initiatives include:

- Transit incentive
- Additional shuttle service
- Commuter incentives & marketing,
- Staff support (0.5->1.25FTE)
- Housing program: loan, capital, staff support (up to 1 FTE)
- Additional bike infrastructure

- **Capital (2014\$)**
  - \$10,000/y in 2015 growing to \$50,000/y in 2050 for bicycle and related infrastructure
  - \$50,000/y in 2015 growing to \$150,000/y in 2050 for housing investments
- **O&M (2014\$)**
  - \$625,000/y in 2015 growing to \$1.4M/y in 2050 (\$1M/y over BAU)
  - Savings in reduced downtown parking of \$240,000 in 2050
  - Net of \$765,000/y in 2050 (over BAU)
- **Change in Demand**
  - Reduction of SOV by 15-25%
- **Change in Supply**
  - Increase programs, shuttle service
- **Impact on GHG Emissions**
  - Reduce Scope 3
  - Increase Scope 1
  - Net reduction (relative to BAU) of **36%**
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$599**

## Commuter – High Investment (Live/Work)

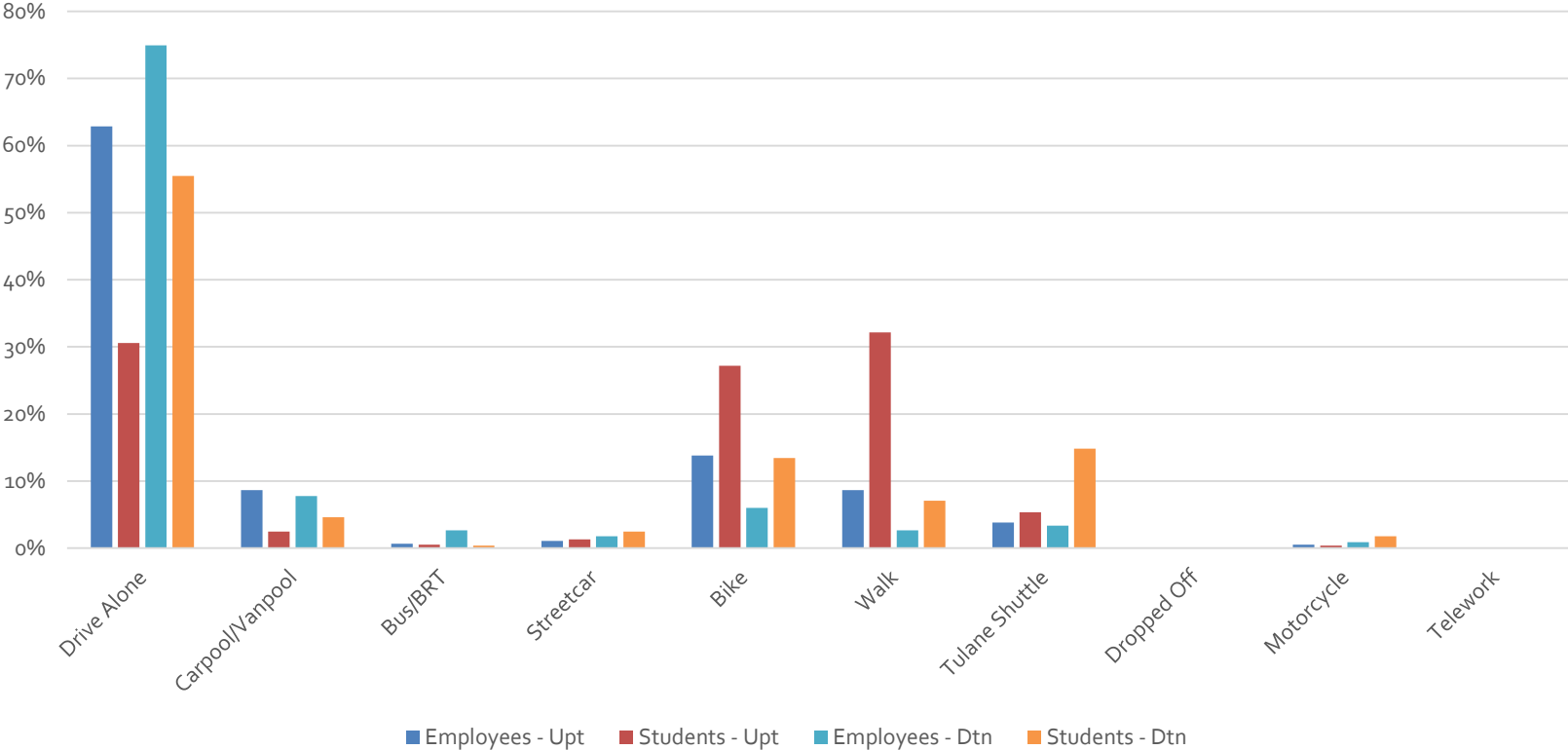
Description: Invest in commuter incentives to reduce single occupant vehicle (SOV) commuting. Additional investments and programs to promote students and employees living close to campus. Key initiatives include:

- Transit incentive
- Additional shuttle service
- Commuter incentives & marketing,
- Staff support (0.5->1.5FTE)
- Housing program: loan, capital, staff support (up to 1.5 FTE)
- Additional bike infrastructure (grows to \$150,000 in 2050)
- Shuttle fleet fuel efficiency program/standards

- **Capital (2014\$)**
  - \$10,000/y in 2015 growing to \$150,000/y in 2050 for bicycle and related infrastructure
  - \$50,000/y in 2015 growing to \$250,000/y in 2050 for housing investments
  - \$100,000/y in 2015 growing to \$190,000/y in 2050 for shuttle efficiency
- **O&M (2014\$)**
  - \$625,000/y in 2015 growing to \$1.6M/y in 2050 (\$1.25M/y over BAU)
  - Savings in reduced downtown parking of \$425,000 in 2050
  - Net of \$800,000/y in 2050 (over BAU)
- **Change in Demand**
  - Reduction of SOV by 25-50%
- **Change in Supply**
  - Increase programs, shuttle service
- **Impact on GHG Emissions**
  - Reduce Scope 3
  - Increase Scope 1
  - Net reduction (relative to BAU) of **56%**
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$560**

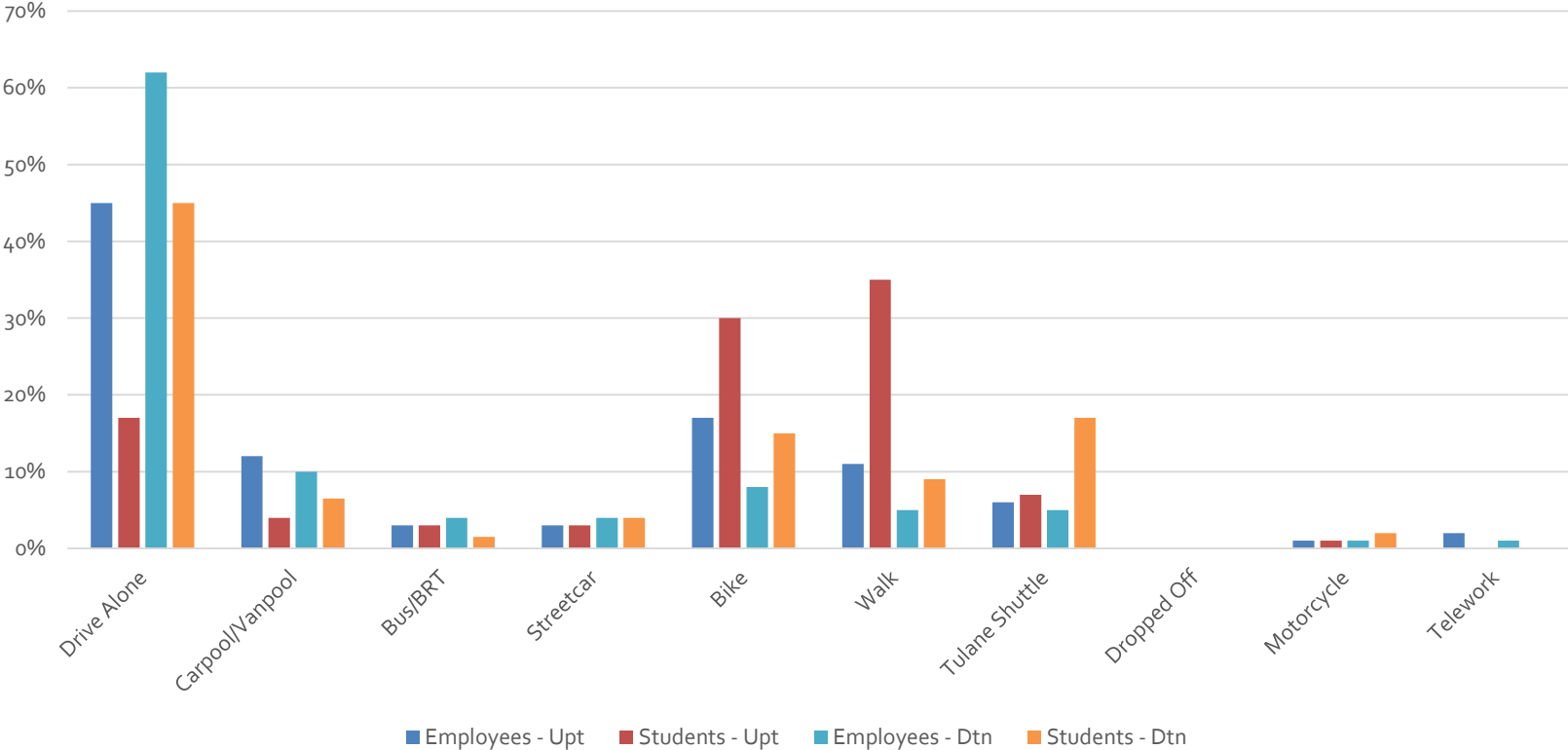
# BAU (Existing)

Mode Split



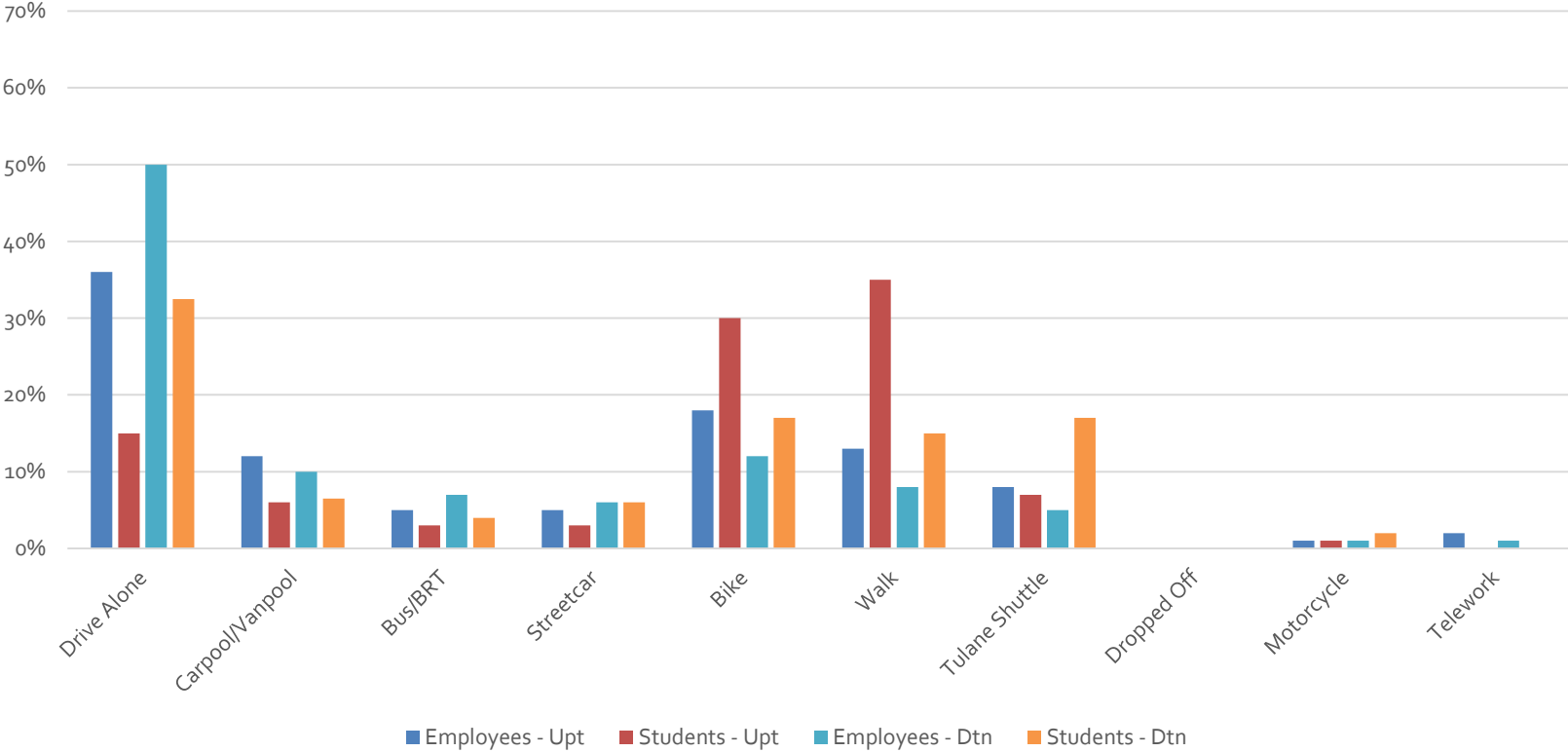
# Low Investment

Mode Split

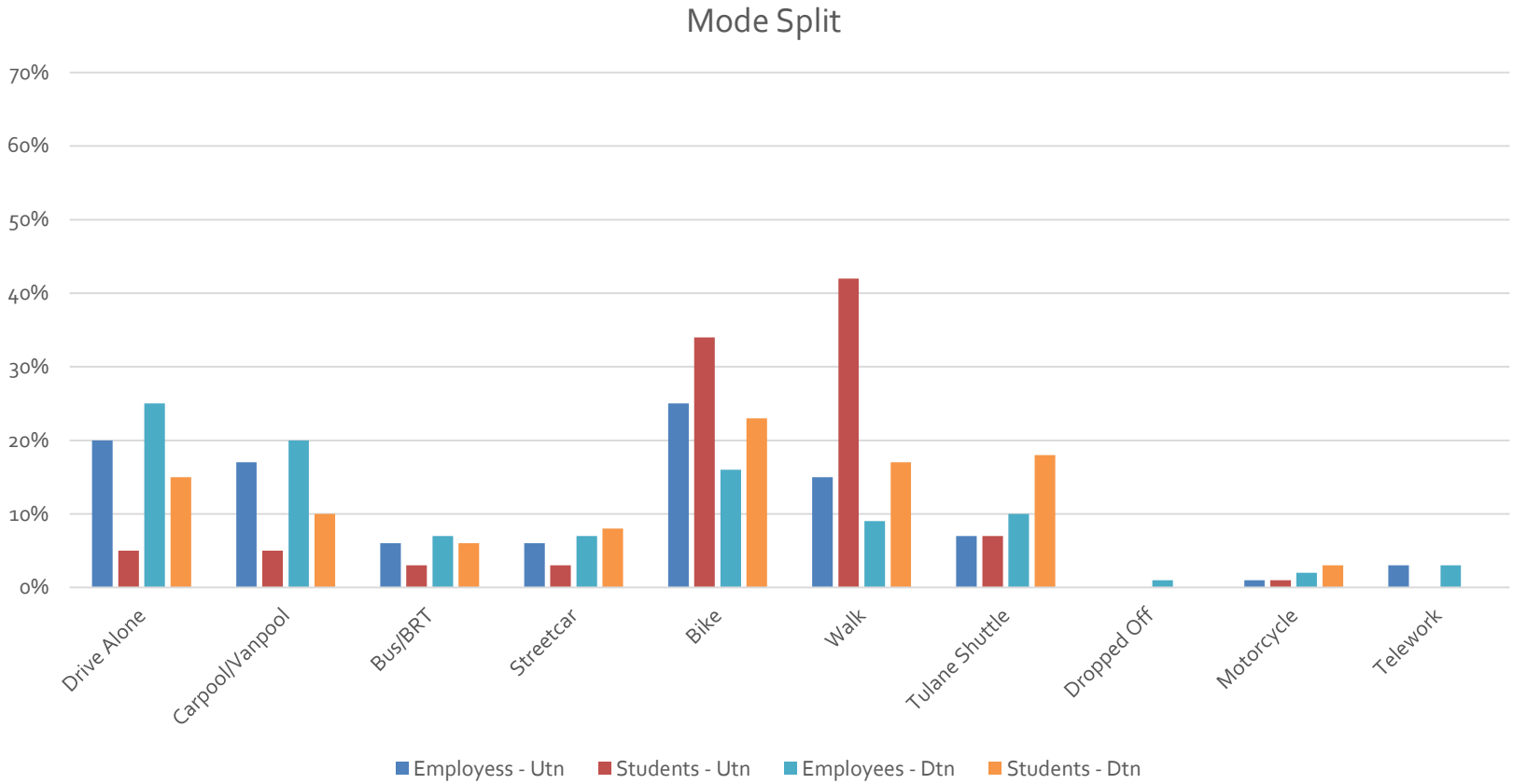


# Medium Investment (Live + Work)

Mode Split

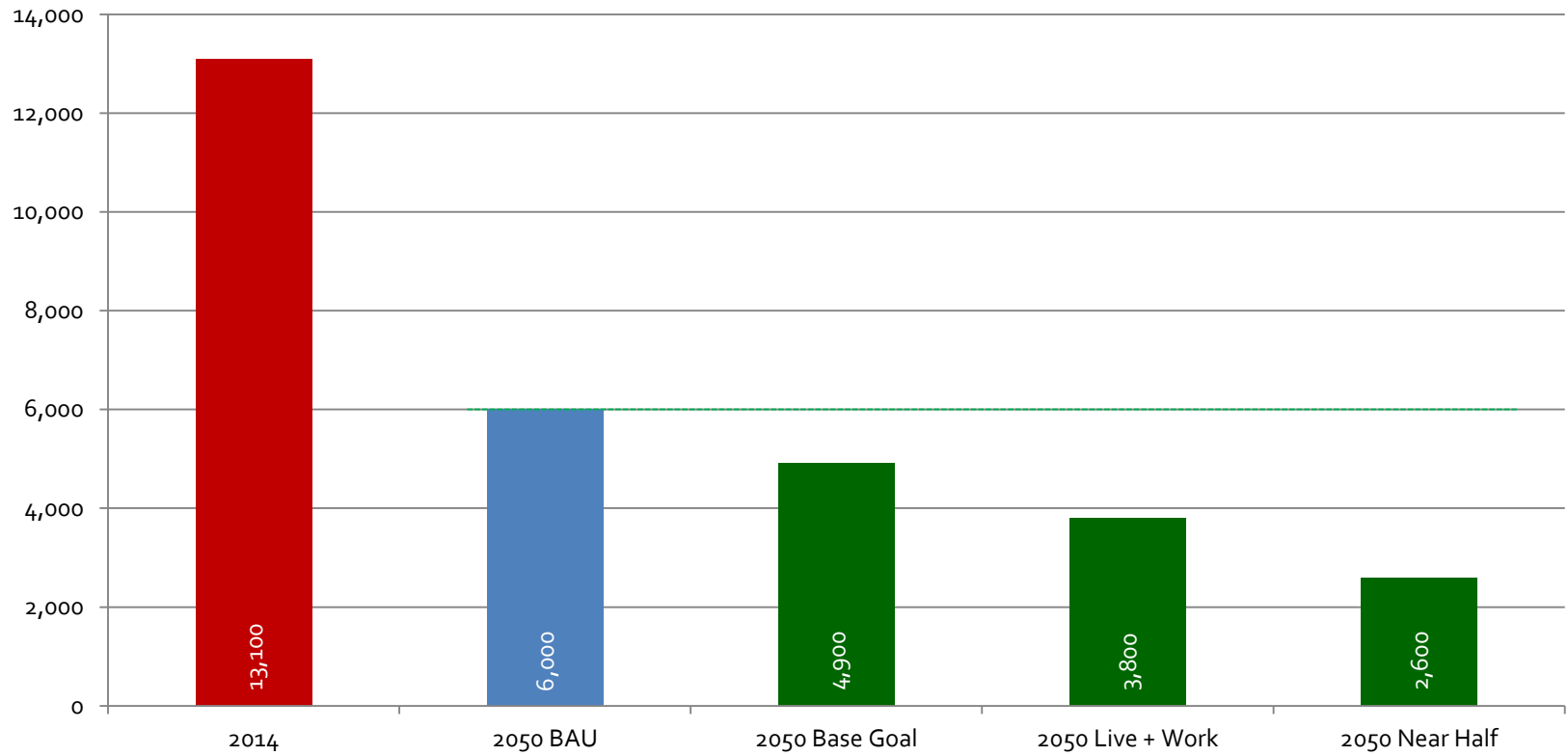


# High Investment (Near Half)





## MT CO<sub>2</sub>e by Scenario



## **Fleet – Low Investment**

Description: Establish fuel purchase standards for fleet vehicles to achieve reductions in fuel use. Program pays ~\$2,000 premium for higher than average efficiency vehicle (for 10 veh per year).

- **Capital (2014\$)**
  - \$20,000/y
- **O&M (2014\$)**
  - Savings grow to over \$45,000/y in 2050
- **Change in Demand**
  - 43% reduction of gasoline by 2050
  - 20% reduction of diesel by 2050
- **Change in Supply**
  - N/A
- **Impact on GHG Emissions**
  - Decrease Scope 1
  - Net reduction (relative to BAU) of **28%**
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$-57**

## Fleet – High Investment

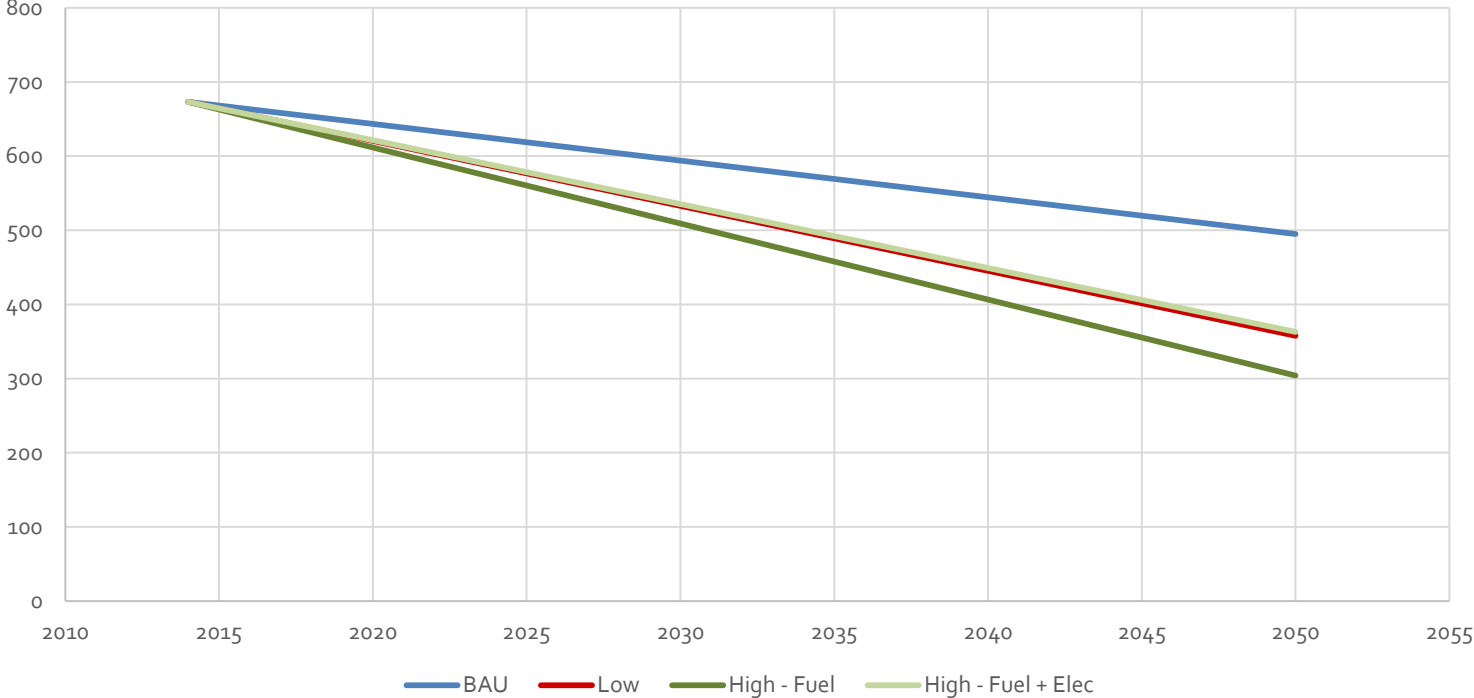
Description: Establish fuel purchase standards for fleet vehicles to achieve reductions in fuel use. Additionally, aim to have 15% of all fleet mileage on electric vehicles by 2050.

- Program pays ~\$2,000 premium for higher than average efficiency vehicle (for 8 vehicles per year).
- Program pays ~\$10,000 premium for electric vehicles; shrinks to \$5,000 by 2025 (for 2 vehicles per year)

- **Capital (2014\$)**
  - \$36,000/y in 2015 decreasing to \$26,000/y in 2025
- **O&M (2014\$)**
  - Fuel savings grow to \$65,000/y in 2050
  - Electricity costs depend on generation
- **Change in Demand**
  - 43% reduction of gasoline by 2050
  - 20% reduction of diesel by 2050
  - Additional 125kWh of electricity demand in 2050
- **Change in Supply**
  - N/A
- **Impact on GHG Emissions**
  - Decrease Scope 1
  - Potential increase in Scope 2
  - Net reduction of fuel GHG (relative to BAU) of **39%**
  - At current EGRID rates, net impact is ~ same as low investment scenario
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$-10**

# Fleet

Fleet Emissions (MT CO<sub>2</sub>e)



## Travel

### Description:

- Promote more efficient air travel by prioritizing air carriers with lower emissions per passenger-mile. This could result in an agreement of a preferred airline, for example.
- Develop programs to support increased electronic communication including distribution of webcams, etc

- **Capital (2014\$)**
  - \$40,000/y in 2015 decreasing to \$25,000/y in 2024
- **O&M (2014\$)**
  - Approximately ¼ FTE to support programs
  - Savings from avoided travel grows to \$450,000/y by 2036 (5% of total travel expenditure)
- **Change in Demand**
  - Additional ½% reduction in air travel emissions from improved carrier efficiency
  - ½% reduction in travel for 20 years (2017-2036)
- **Change in Supply**
  - N/A
- **Impact on GHG Emissions**
  - Decrease Scope 3 of 24% (relative to BAU) by 2050
- **Start Date**
  - 2015
- **Useful Life**
  - Indefinite
- **Net Cost per MT (2014\$): \$-92**

# Recommendations

- Implement travel
- Implement low-investment fleet
  - Reevaluate in 5+ years to determine if alternate fuel source provides better savings (GHG + \$)
- Implement medium-investment commuter with goal/option of reaching toward high
  - “Do-nothing” is most cost-effective but not politically feasible
    - May delay full implementation until medium-term (2020+)