



# Future Trends and Challenges in Transportation

**Frank A. Verrastro**  
**Director & Senior Fellow**

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CENTER FOR STRATEGIC &  
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Security Program

## Transforming the Transportation Sector

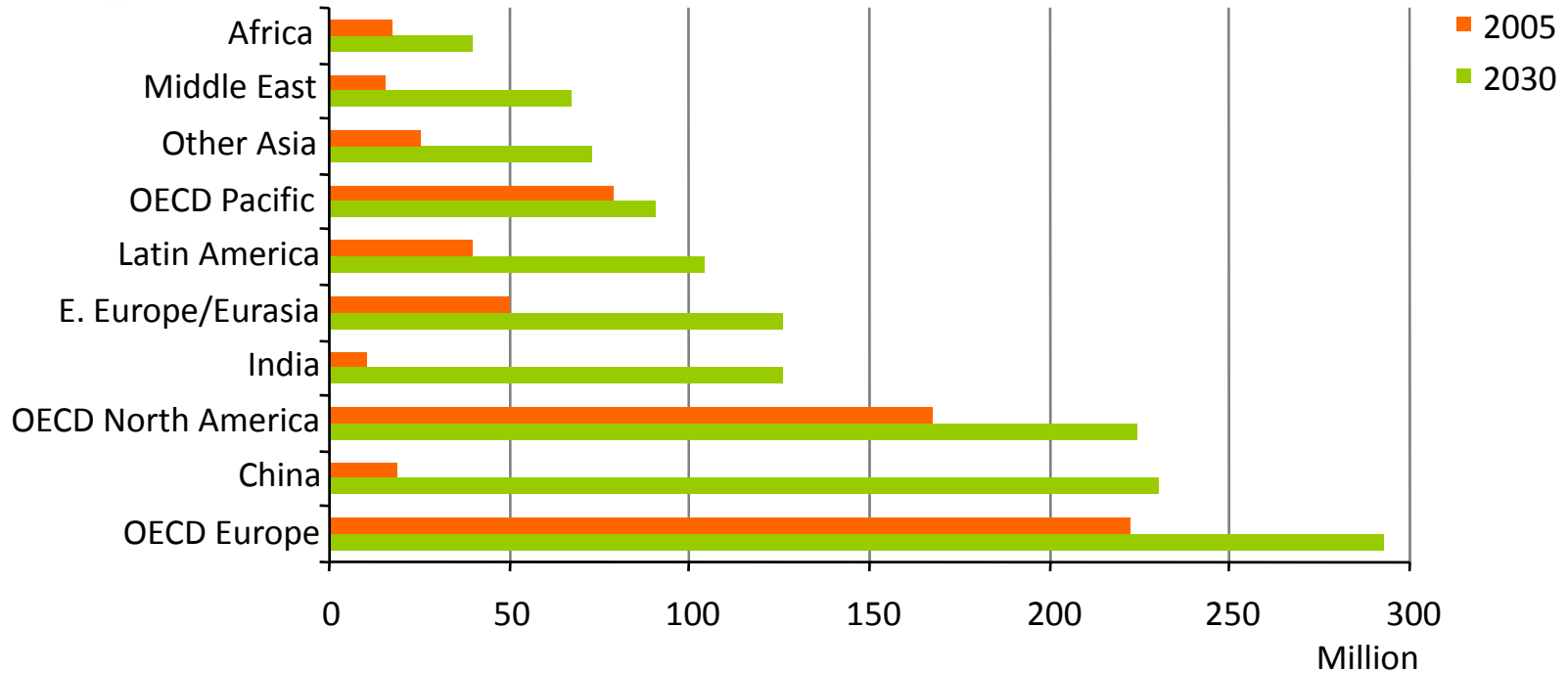
- In the past 150 years, the US has undergone at least two energy transitions
- Transformation takes decades, large investments and behavioral change
- 97% of transport fuels are petroleum-based
- Transport needs account for 2/3 of US petroleum consumption



## Current Situation in the United States

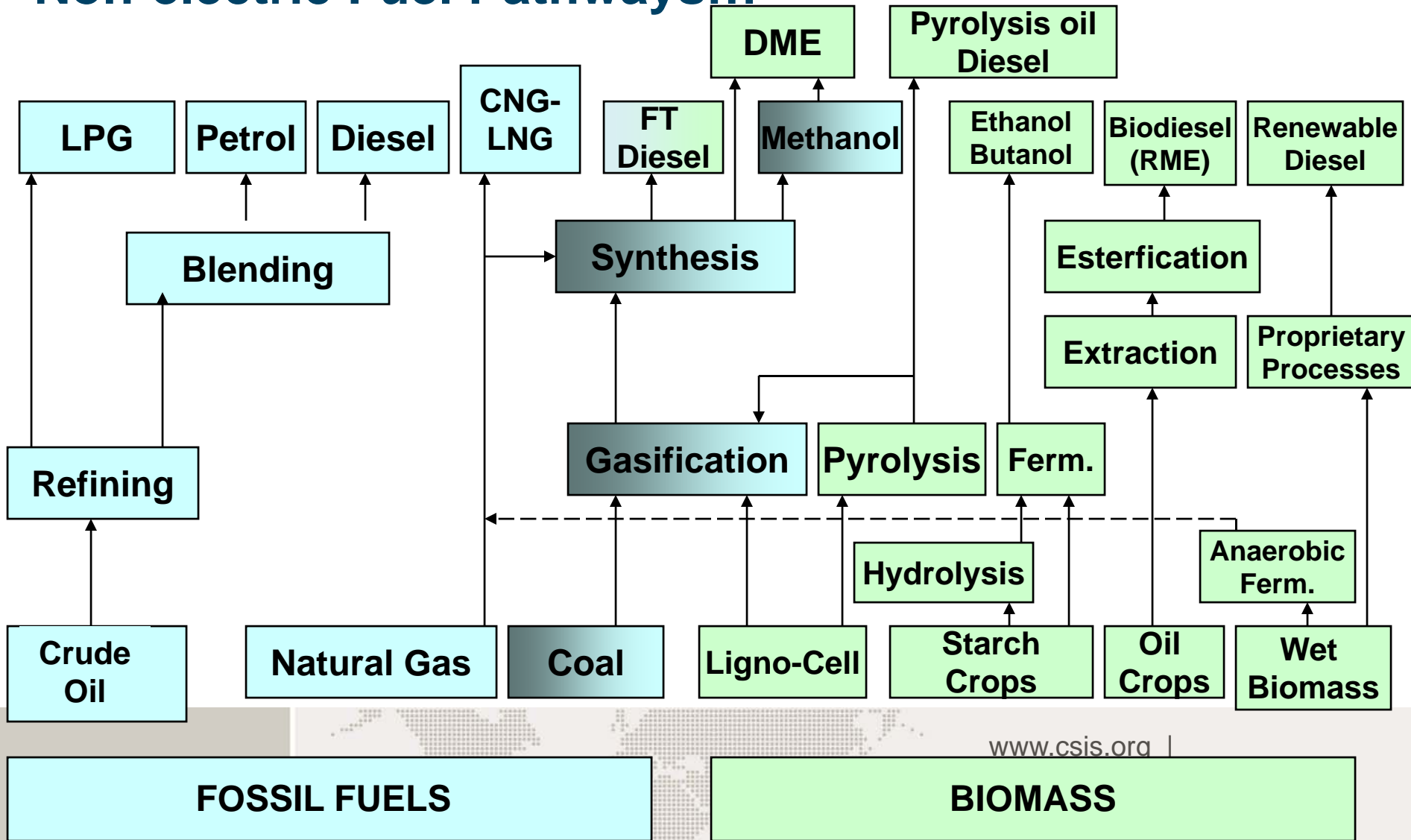
- **Average person drives more than 12,000 miles per year and uses 500 gallons of gasoline. Since 1970, VMT increased at almost four times the rate of population growth**
- **By 2050, with an economy four times greater than today, freight and passenger transportation is expected to increase by a factor of two-and-a-half**
- **Transportation costs represent slightly less than 20% of current household expenses; 30% for lower income households**
- **American Society of Civil Engineers estimates the U.S. needs to invest \$2.2 trillion over 5 years – about \$1.1 trillion more than current spending (less than \$200 billion per year)**

## The Reference Scenario: Light-duty vehicle fleet



***The global light-duty vehicle stock rises from 650 million in 2005 to about 1.4 billion by 2030, with China accounting for almost one-third of the increase***

# Non-electric Fuel Pathways...



The end goal is to have transportation services that are...

