Cooperative Energy Efficiency Design for Sustainability (CEEDS), Phase 3

Energy Efficient Urban Passenger Transportation

First Workshop : Summary of Key Issues

San Francisco, CA,USA
14-16 September 2011

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CEEDS: Objectives & Process

- Objectives
  - Promote “high-performance” energy efficiency policies in selected sectors in APEC economies
  - Complement “PREE” (single- economy review)
- Phase 1 – Appliance Efficiency S&L
- Phase 2 – Building Codes & Labeling
- Phase 3 – Energy Efficient Urban Passenger Transport
  - Workshop 1: San Francisco, 14-16 Sept. 2011
  - Workshop 2: Singapore, 17-19 January 2012

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Why EE Transport?

- Urbanization trends + increase in private motorized vehicles
- Public health
- Energy security
- GHG emissions
- Costs of urban infrastructure

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Key Issues Discussed at CEEDS 3 Workshop #1

- Livable communities and transit oriented development
- Mass transit as a key component of TOD
- Vehicle efficiency

Decisions made today about urban design will impact our cities' energy use for decades to come.

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Livable Communities and TOD

- The 8 “Ds” for changing travel behavior:
  - Increase residential AND employment density
  - Diversify land uses
  - Design land so that it has interconnected and varied spaces
  - Ensure destination accessibility
  - Focus on distance to transit (most of the density = within a quarter mile from the transit station)
  - Consider Development Scale, Demand management such as parking restrictions, and Demographics

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Livable Communities and TOD

- Some best practices:
  - De-emphasize vehicles
  - Charge for vehicles coming in
  - Maximize intermodal connectivity of transit hubs
  - Focus on mass transit (e.g., BRT)
  - Incorporate pedestrian and bike networks
  - Highlight co-benefits (e.g., congestion reduction) to ensure widespread support
- Interagency cooperation is Key

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Mass Transit as Key Component of TOD

- Factors to consider when selecting mode:
  - Land use factors
  - Demand for transit service
  - System design
  - Capital and operating budgets vs. costs of proposed system
  - GHG reduction potential
  - Potential effectiveness

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Mass Transit as Key Component of TOD: Bus Rapid Transit (BRT)

- Cost effective and quick to deploy
- Greater service area than rail, for less cost
- Best practices:
  - Median-aligned bus lanes
  - Dedicated lanes
  - Off-board fare collection
  - wide doors and level boarding
  - Careful intersection design, station placement
  - Safe, weather protected stations
  - Integration with bike paths & bike sharing

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Road Vehicle Efficiency

- Fuel economy standards – best practices:
  - Apply to all major vehicles, not just cars
  - Base on size (rather than weight)
  - Couple with incentivizing policies
- Fiscal incentives
  - Tax incentive for buying efficient vehicle, penalty for buying less efficient vehicle
- Consumer information/labeling
  - For new OR used cars – New Zealand example
- Pricing and congestion policies
  - Ownership control: Quota system and fees/taxes
  - User-side measures: Area Licensing Scheme (ALS), Electronic Road Pricing (ERP)

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Road Vehicle Efficiency

- Technological options:
  - Available today: Engine, transmission, road load improvements
  - Mid-term option: Hybrid vehicles
  - Long-term option: Electric drive vehicles
- Electric Vehicles:
  - Progress has slowed, future unclear
  - Could develop “top down” (fully functional, full size vehicles) or “bottom up” (small, less expensive vehicles)
  - New option: Distributed mass transit (“Station cars”): Toyota

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Road Vehicle Efficiency: Used Car Imports/Exports

- Issues:
  - Who has the burden of responsibility?
  - Are used imports always bad?
- Control options include:
  - Requiring inspection/maintenance test at the border
  - Prohibiting imports or exports of used vehicles
  - Restricting the age of used imports
  - Requiring higher taxes on high-polluting vehicles

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Levers to Influence Change (USA example)

- Public sector legislation/regulation:
  - Federal efficiency/CAFE standards, clean air regulation, incentives/taxes
  - State and local growth management, zoning, land use (e.g., bike lanes), taxi requirements, parking/congestion pricing
- Private sector: Demonstration programs, financing
- NGOs: Scholarship, research, advocacy

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Economy Status Report: China

- Main Issues:
  - Traffic congestion, traffic accidents, environmental pollution, energy use
  - Lack of infrastructure and traffic facilities, poor travel behavior
- Goals:
  - Change travel demand characteristics (reduce distance necessary to reach destinations)
  - Reduce car trips
  - Improve efficiency of road networks
  - Change travel behavior (through education, enforcement, culture, morals)
  - Change vehicle technology

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China Next Steps

- Propose a policy recommendation for central government (multiple ministries)
- Perform a demonstration project together with local government
  - Coordinate with China Eco-Cities program (5-year plan) and LCMT initiative, LCMT report (Nov. 2011)
  - Choose medium-size city
  - Work with expert group to develop comprehensive transport plan; implement and publicize
- Hold two workshops (e.g., best practice and demonstration project symposium)
  - Coordinate with annual LCMT fora

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China Next Steps (cont'd)

- ***Land use and urban planning***
  - Focus on regional scale
  - Mandate TOD for all new towns and major expansions
- ***Prioritize road uses***: Walking/biking first, cars last (promote electric, small cars)
- Increase ***mass transit*** availability (BRT and buses) to ensure adequate alternative transport options
- ***Influence behavior*** to discourage car use and encourage walking/biking/mass transit:
  - Parking limits, congestion charging
  - Provide mass transit passes with housing
  - Promote popularity of biking

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Economy Status Report: Mexico

- Main Issues:
  - Traffic congestion, pollution, energy use
  - Inefficient used vehicle imports
- Goals:
  - Improve fuel economy of vehicles entering the fleet (both new vehicles and imported used vehicles)
  - Improve regulatory structure
  - Consider economic incentives to promote efficient transport choices
  - Increase availability and attractiveness of public transit options
  - Improve urban traffic management
  - Reign in urban sprawl

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Mexico Next Steps

- Improve vehicle efficiency
  - New fuel economy/GHG standards for LD and HD vehicles tied to:
    - Tax scheme based on vehicle performance
    - Financial incentives for vehicles that exceed standards
  - Accelerated replacement of inefficient vehicles
  - Mandatory registration of imported used vehicles (NZ model)
- Improve fuel quality: Quality standards, increase capacity of PEMEX to enforce standards
- Improve energy diversity: Consider low carbon fuels, LPG buses
- Improve driving behavior
  - Information campaign
  - Focus on freight (GPS monitoring, education, recognition)

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Mexico Next Steps (Cont'd)

- Promote shifts to Lower C modes in cities
  - Reduce/eliminate fuel subsidies
  - Promote non-motorized/more efficient modes:
    - Bike sharing and walkability projects (enhance safety!)
    - Promote BRT, subways, rail
  - Highlight public transit success stories

- Land use/TOD planning
  - Engage decision makers and private developers
  - Revise street design standards (Complete Streets)
  - Strengthen environmental impact accountability laws
  - Focus on parking management

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Economy Status Report: Philippines

- Main Issues:
  - Proliferation of unregistered, unregulated transit operators (buses, jeepneys)
  - Congested rail system
  - Lack of government capacity to implement EE transport policies and regulations
- Goals:
  - Implement and enforce existing transport EE policies
  - Build capacity and increase resources of government agencies responsible for transport programs
  - Create integrated, focused approach to information campaigns about transport issues

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Philippines Next Steps: Implement DOE Action Plan

- Alternative fuels roadmap (CNG buses pilot), e-trikes, auto-LPG for jeepneys, e-buses
- Support passage of legislation on incentives for alternative fuel vehicles, and EE and Conservation bill
- Harmonization of biofuel blends with Euro 4 standards
- R&D on alternative fuels technologies
- Close interagency coordination on implementation of National Environmentally Sustainable Transport program

**Use data to make the case about benefits!

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Philippines Next Steps (Cont'd)

- Land use planning:
  - Consider TOD: Department of Energy can advocate that different local government units (including Housing Ministry) coordinate efforts, e.g., at cabinet meetings
  - Promote public-private coordination, and involvement of citizens ("people power")
- Consider BRT project feasibility (Cebu or Metro Manila)
- Scale up electric tricycles program (in tranches)

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Economy Status Report: Thailand

- Main Issues:
  - Bottlenecks around gateways
  - Incomplete road network
  - Enormous travel volume/congestion
  - Population movements out of cities that result in long commutes
  - Low quality bus system, limited BRT/rail

- Goals:
  - Improve urban planning
  - Promote car/van-pooling (connections to mass transit)
  - Encourage purchase of energy efficient cars
  - Change population trends/bias toward commuting back to city schools and hospitals

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Thailand Next Steps

- Set targets with specific timeframe, e.g., reductions in emissions, travel time, and travel distance growth rate
- Short term:
  - Public information and education: web, mobile info, ITS, brochures, TV/radio, school programs, eco-driving training.
  - Cooperation with public &private agencies:
    - Bangkok Mass transit authority, Government owned vehicles
    - Airport authority (limousines, parking priority for efficient vehicles)
    - Waterway improvements (LNG, biofuels, solar ferries)
    - Private sectors (cement companies, superstores, etc.) -- showcase EE transportation in short term

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Thailand Next Steps (Cont'd)

- Medium term: Improve public transport
  - Increase public transit use, expand systems and improve quality (buses, gold std BRT), introduce EE/CNG buses
  - Intelligent routing and real-time passenger info
  - Convenient ticketing for different modes
  - Improved park and ride facilities
  - Car-pooling vans
- Longer term: Demand pricing
  - Road user charges (time of use/zones/emission)
  - Pay-as-you-drive insurance
- Longer term: Urban planning
  - Applicable outside central Bangkok
  - TOD with self-sufficient district, better city planning, bike/walking lanes

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Thailand Next Steps (Cont'd): Ongoing Strategies

- Promotion of high EE vehicles
  - Eco cars, FFVs, hybrid, hydrogen, Evs
  - R&D for fuel efficiency technologies
  - Energy labeling
  - Tax privileges for high EE vehicles
  - Car parking/HOV lane privileges
  - High fuel economy standards
- Institutional/Capacity building
  - Coordinate among public agencies
  - Practical database
  - Capacity/skill building and knowledge management
  - Systematic and regular M&E
  - Good governance and accountability

Consider Pilot integrated TOD district in Bangkok:
- Car free zones
- Parking facilities
- Public transit

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Economy Status Report: Viet Nam

- Main Issues:
  - Lack of urban land for transport infrastructure in cities
  - Insufficient public bus service, no mass transit systems in large cities
  - Proliferation of motorbikes for personal transport
- Goals:
  - Integrate new metro lines in major cities with other transport modes (buses, BRT, bikes/walking paths)
  - Improve private vehicle fuel economy

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Viet Nam Next Steps

- Mass Transit: Enhance public bus service in large cities
  - Ha Noi and Ho Chi Minh City new bus and BRT routes planned
  - Study to integrate urban transport modes in both cities (ADB)

- Fuel Economy/Emissions Standards
  - May 2012 new standard for motorbikes
  - I/M regulations for motorbikes (cities first, expand in 2015)
  - Enforce Euro 3, 4, 5 emissions standards (motorbikes by 2017, cars by 2022)
  - Fuel economy labeling system to be enforced by 2015

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Vietnam Next Steps (Cont'd)

- Public information and incentives
  - Training/awareness on eco-driving and public transport
  - Tax incentive for EE vehicles
  - Parking charges in large cities
  - Consider environmental tax for vehicles

- Look at adding all fuels as options

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Next Steps for CEEDS Phase 3

- Workshop Summary Report (10/28)
- Participating economies refine and implement “Next Steps”
- Workshop #2 : Report on progress, issues, & future plans (January 14-16, Singapore)

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