Energy Legislation and Incentives for Sustainable Urban Redevelopment

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Green Buildings and Brownfields

- Brewer’s Hill, Baltimore
  - $125 million mixed use
- Building and site characteristics:
  - Green – LEED
  - Rehab vs. demo/new construction
- VMT characteristics
  - Close to Urban Center
  - Density
  - Mixing of uses/internal design
  - Degree of connectedness to the existing grid
  - Access to transit
Summary

- Sustainable Urban Redevelopment has multiple energy-saving benefits – more than you think
- Energy legislation should include enhanced incentives for Sustainable Urban Redevelopment
- Current federal development incentives need to be adjusted to reflect energy saving objectives
Energy-saving Benefits of Sustainable Urban Redevelopment

More than you think:

- **Transportation Aspects:**
  - In-fill connection to lower VMT’s
    - Shorter work and shopping trips
    - Higher non-auto mode split
- **Building-Related Aspects:**
  - Green Buildings
  - Density
  - Rehab vs. new construction
- **Site related Aspects**
  - Infrastructure
  - Distributing energy (less line-loss)
  - Distributed and alternative energy
Energy Demands by Sector

- Industry: 25%
- Buildings: 43%
- Transportation: 32%

Energy demands by Sector

- Industry
- Buildings
- Transportation
Transportation/VMT’s
ULI Report – “Growing Cooler”

- VMT’s are increasing faster than fuel efficiency – implications:
  - GHG cannot be lowered by CAFE standards and switch to alternate fuels, alone.
- Compact growth - people *do* drive less
- “The rise in vehicle emissions can be curbed simply by growing in a way that makes it easier for Americans to drive less”
Transportation/VMT’s
ULI Report – “Growing Cooler”

- 20% – 40% VMT reduction due to “compact in-fill” development.
- Factors affecting the range, in rank order:
  - Location near city center
  - Density
  - Mixing of uses/internal design
  - Degree of connectedness to the existing grid
  - Access to transit
Transportation/VMT’s
ULI Report – “Growing Cooler”

- Growth scenario: if 60% of new development by 2050 is “compact:”
  - Reduces total transportation-related CO₂ from expected trends by 7% to 12%.
  - Benefits are permanent and will grow over time
Transportation/VMT’s
Other Studies

- Atlanta “Most Walkable Neighborhoods” saved 20% - 30% VMT’s compared to “Least Walkable Neighborhoods
- King Co. Urban “Interconnected Neighborhoods” Reduced VMT’s by 26%
- Ctr for Clean air Policy - Projected 25% reduction in VMT’s for Urban/20 DU/Ac vs Suburban/4 DU/ac
Transportation/VMT’s –
Brownfields/infill and VMT’s

- **Clean Air-Brownfields Project:**
  - Dallas and Baltimore case studies: Brownfields vs greenfields, saves:
    - 22% - 55% VMT’s
    - 40% - 87% - NOX
    - 36% - 73% - VOC’s

- **Atlantic Station EPA Analysis**
  - Atlantic Steel (vs. 3 alternate suburban sites) saves:
    - 14% - 52% VMT’s
    - 37% - 81% - NOX
    - 37% - 81% - VOC’s
Going beyond VMT’s – Building Factors

- Buildings account for 43% of energy demand
- Ways to reduce GHG’s attributable to Buildings:
  - Green/energy efficient buildings
  - *Efficiencies in heating and air conditioning higher density structures (fewer exposed walls)*
  - *Rehab vs. New Construction*
Going beyond VMT’s – Building Factors - Density

- Efficiencies in heating and air conditioning more dense structures (fewer exposed walls)
  - Multi-family housing averages $\frac{1}{2}$ the electricity use of single-family housing;
  - ULI report – 20% differential when control for socioeconomic factors and DU size
It takes approximately 65 years for a green, energy-efficient new office building to recover the energy lost in demolishing an existing building and building a new one.

* Richard Moe, President, National Trust for Historic Preservation, not verified
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Building Factors – Green Buildings
Mega-Brownfields Projects – Going Green

Atlantic Station, Atlanta

Gates Rubber, Denver

Gateway South, Baltimore

Cleveland Flats East Bank, Cleveland
Green Buildings and Brownfields

- **Westport, Baltimore**
  - $1.4 billion million mixed use
  - Building and site characteristics:
    - Green – LEED
    - Access to 10 miles trails
  - VMT characteristics
    - Close to Urban Center
    - Density
    - Mixing of uses/internal design
    - Degree of connectedness to the existing grid
    - Transit-oriented development
Infrastructure-related energy demands
  - Cost differential –
    - $55,000/DU/Suburban vs.
    - $7,500/DU/brownfields
  - Infill 25% lower than greenfields (EESI)

Greater efficiency (lower “line-loss”) in transmitting energy

Distributed/alternative energy
  - District Heating/Waste-to-energy plants serve many urban core areas
Going beyond VMT’s – Site Factors – Distributed Energy

- Waste-to-Energy plants
  - 89 waste-to-energy plants operating in 27 states;
  - Generate 2,500 megawatts electricity to 2.3 million homes;
  - 1500-ton/day facility saves **270,000 tons CO₂** annually

Baltimore’s waste to energy plant – BRESCO – serves Baltimore’s core/Downtown
Green Buildings and Historic Preservation

- **The Atrium, Baltimore** - 118 apartments
- Buildings and site energy savings
  - Distributed energy
  - Green
  - Rehab vs. demo/new construction
  - Infrastructure in place
- VMT characteristics
  - Close to Urban Center
  - Density
  - Mixing of uses/internal design
  - Degree of connectedness to the existing grid
  - Access to transit - TOD
Brownfields and energy
Pointing to the potential

Georgetown Land Development, Redding, CN
- Buildings and site energy savings
  - Green
  - Rehab vs. demo/new construction
  - Infrastructure in place
  - Alternative energy
  - Lower line-loss
- VMT characteristics
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  - Mixing of uses/internal design
  - Degree of connectedness to the existing grid
  - Access to transit - TOD
Sustainable Development and Energy Pointing to the Potential

Portland – South Waterfront

- Buildings and site energy savings
  - Green
  - Alternative energy Solar and Combined Heat and Power (CHP)
  - Rehab vs. demo/new construction
  - Infrastructure in place
  - Lower line-loss

- VMT characteristics
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Policy Implications

- Energy legislation should include enhanced incentives for Sustainable Urban Redevelopment
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Policy Implications – Energy Legislation

Energy and Conservation Block Grants - eligible uses:

- Incentives for energy efficiency
- Energy efficiency and conservation programs for buildings
- Programs to conserve energy used in transportation
- Application of energy distribution technologies (distributed energy and district heating)
Policy Implications – Energy Legislation

Warner-Lieberman Cap-and-trade Bill:

- By 2030 $100 billion involved in auction
- 10% of auction proceeds to states. One of 12 allowable uses:
  - To improve public transportation and passenger rail service and otherwise promote reductions in vehicle miles traveled.
Policy Implications – Energy Legislation

Warner-Lieberman Cap-and-trade Bill:

- VMT reduction as the missing piece
- Should sustainable urban redevelopment be an eligible activity? How?
Policy Implications – Energy Legislation
Warner-Lieberman Cap-and-trade

- Should the Bill support “Sustainable Urban Redevelopment?”
- Just 1% is $1 billion
- How?

- Support TOD, brownfields, historic preservation:
  - Consistent w/existing fed prog.
  - Require “green”
  - Require “Energy efficient location.”
Policy Implications – Existing Federal Development Incentives

- Principle: Modify and Enhance Existing Federal Development Incentive Programs to Reflect Energy Objectives
Policy Implications – Existing Federal Development Incentives - Brownfields

- Increase cleanup grants from $200,000 per site to $1 million per site for projects that meet two of three criteria:
  - Green/high performance
  - TOD
  - Energy-efficient location

- Establish “Sustainable Development and Alternative Energy Brownfields Pilots”

* LEED ND designation may substitute
Policy Implications
New Markets Tax Credits

- Increase tax credit from 39% to 42% for projects that meet two of three criteria:
  - Green/high performance
  - TOD
  - Energy-efficient location
Policy Implications
Historic Tax Credits

- Increase tax credit from 20% to 23% for projects that meet two of three criteria:
  - Green/high performance
  - TOD
  - Energy-efficient location
Policy Implications
Economic Development Administration

- Broaden program objectives to include public improvements supporting mixed use “New Urbanist” redevelopment. Require meeting two of three criteria:
  - Green/high performance
  - TOD
  - Energy-efficient location
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