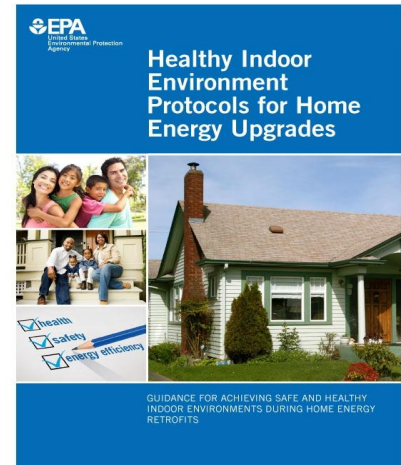




EPA Tools to Assess and Improve Indoor Environmental Quality

- Healthy Indoor Environments
Protocols for Home Energy
Upgrades
- Indoor airPLUS
- Radon
- Asthma

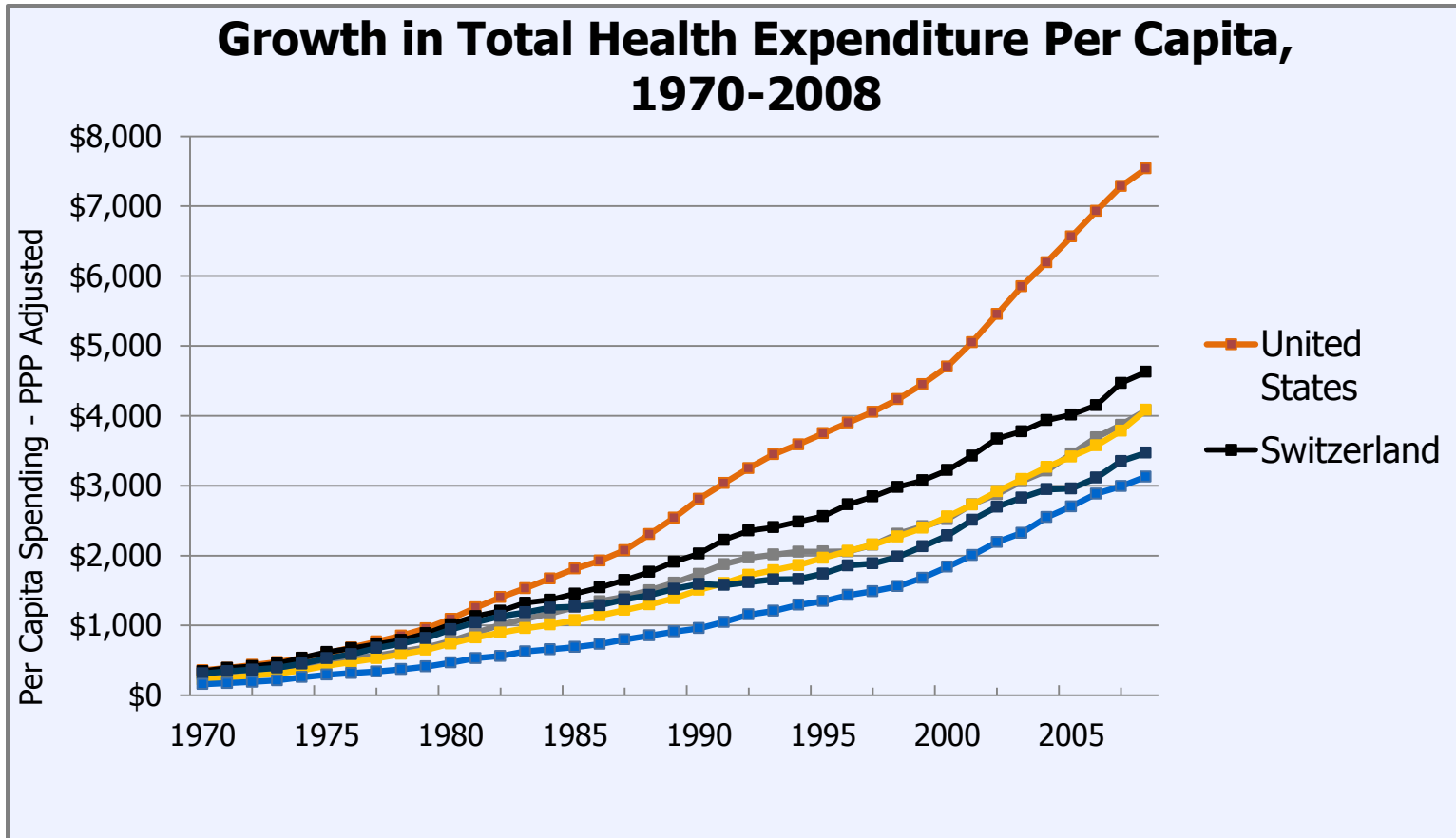


The Opportunity



- Energy upgrades in over 1 million homes in the next 7 years
- We are “touching” a large number of homes and families

Rising Health Care Costs



Housing-Based Health Threats



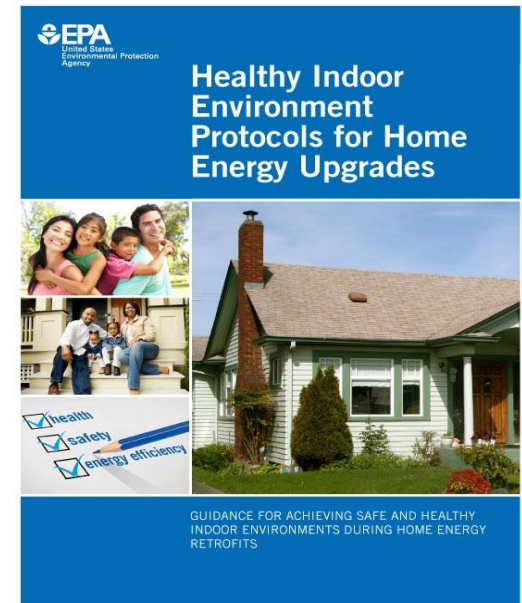
Making Homes Warmer Reduces Health Care Costs



- 30% increase in number of underweight infants and toddlers in ER after coldest months
- Infants in families receiving fuel assistance are 32% less likely to require hospitalization than families who do not receive Low Income Home Energy Assistance Program (LIHEAP)


Healthy Indoor Environment Protocols for Home Energy Upgrades

- Practical, voluntary guidance on maintaining and improving indoor air quality and environments during home energy upgrades, retrofits or remodeling
- Applies to existing single-family and multi-family low-rise residential buildings





Recovery Through Retrofit Workforce Development Guidelines




 U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Workforce Guidelines for Home Energy Upgrades



 EPA
United States
Environmental Protection
Agency

Healthy Indoor Environment Protocols for Home Energy Upgrades



GUIDANCE FOR ACHIEVING SAFE AND HEALTHY
INDOOR ENVIRONMENTS DURING HOME ENERGY
RETROFITS

EPA & DOE Documents

- Intended for voluntary adoption by:
 - Weatherization assistance programs
 - Federally funded housing programs
 - Private sector home performance contractors
 - Others working on residential energy upgrade or remodeling efforts



Why Energy Upgrade Providers Need EPA's Protocols

What Can Go Wrong?

- **Combustion safety problems** (House pressure changes: back-drafting, spillage, moisture, etc.)
- **Moisture/mold problems** (Insufficient ventilation, improper vapor barrier/insulation installation, etc.)
- **Increased exposure to:**
 - Asthma triggers (Mold, pests, VOC's, etc.)
 - Chronic health risks, including radon, lead, formaldehyde, etc.
- **Comfort problems** (Loss of RH control)

Relationship to DOE Weatherization Guidance 11-6

- 11-6 is consistent with EPA's Healthy Indoor Environment Protocols for Home Energy Upgrades
- 11-6 requires as minimums:
 - CO testing and repairs to poorly performing equipment
 - Lead Safe Work Practices
 - ASHRAE 62.2 Enhanced Ventilation

Relationship to DOE Weatherization Guidance 11-6

- 11-6 Allows Funds to Be Spent On - Examples
 - Asbestos: Testing; removing siding to allow insulation, encapsulation on pipes
 - CO: Testing, detectors, repairs or replacement if high CO
 - Electrical Repairs: Minor repairs
 - Injury Prevention: Minor repairs to protect WAP workers
 - Lead: RRP & Lead Safe Weatherization Training
 - Moisture: Minor repairs to allow weatherization and achieve durability
 - Pests: Removal when pests would prevent Weatherization; exclusion.
 - Radon: Testing in high radon areas; precautionary measures
 - Smoke & CO Detectors
 - Spray Foam precautions

Possible Applications

- Inform federal & state **weatherization** program health and safety practices
- Inform **utility** energy efficiency program standards and practices
- Inform **HUD** and **state housing** funded energy upgrade standards
- Develop or enhance standardized **training programs**
- Inform **private renovation and energy contractor** practices

For more information

Visit:

Indoor airPLUS : www.epa.gov/indoorairplus

Healthy Home Environment Protocols for
Home Energy Upgrades:

<http://www.epa.gov/iaq/homes/retrofits.html>

