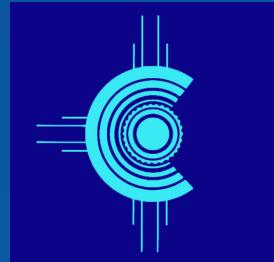


# Tribal Housing Weatherization Initiative Pilot Project



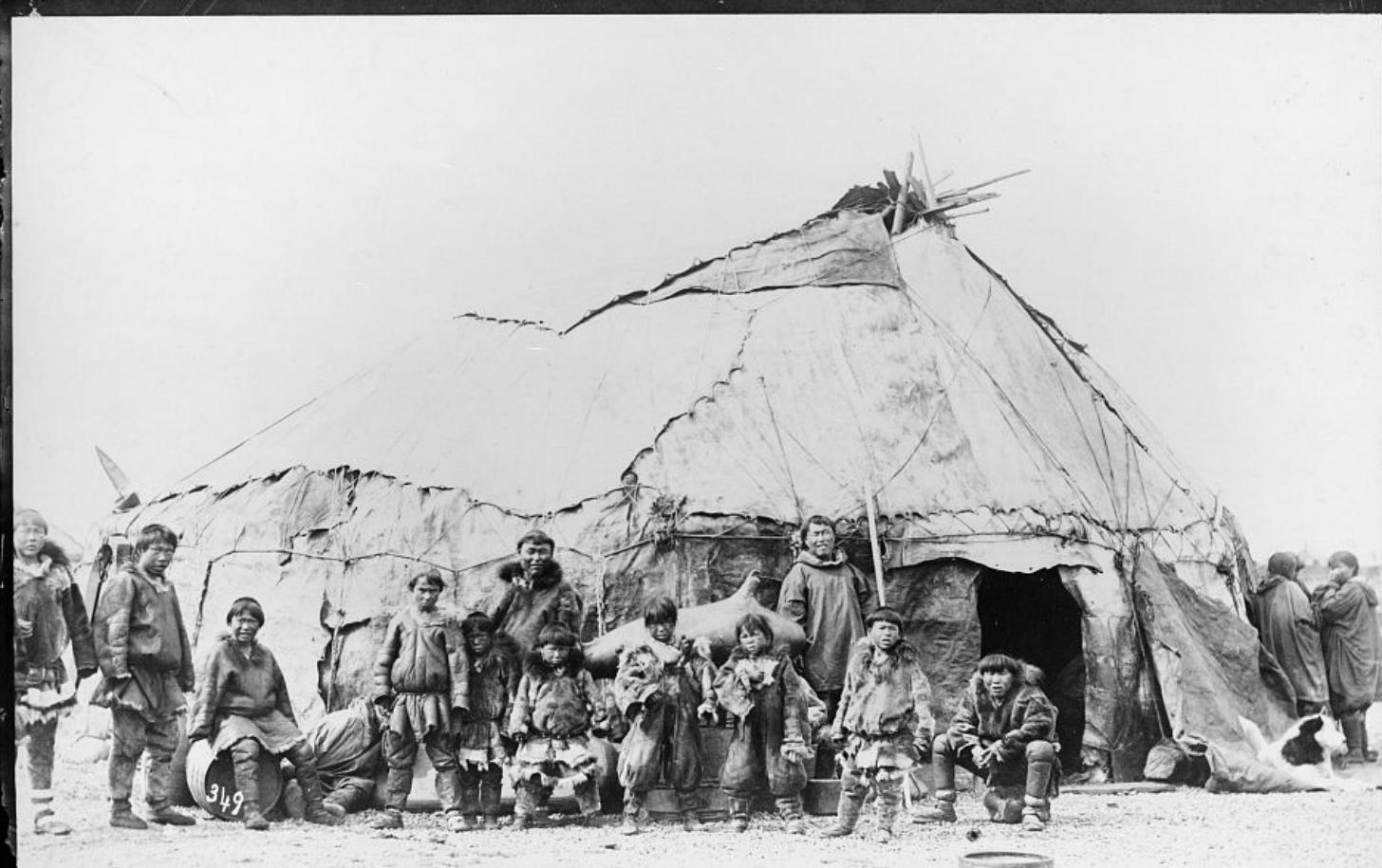


<http://memory.loc.gov/service/pnp/cph/3c30000/3c35000/3c35900/3c35985v.jpg>

ESKIMO IGLOO

6384-14



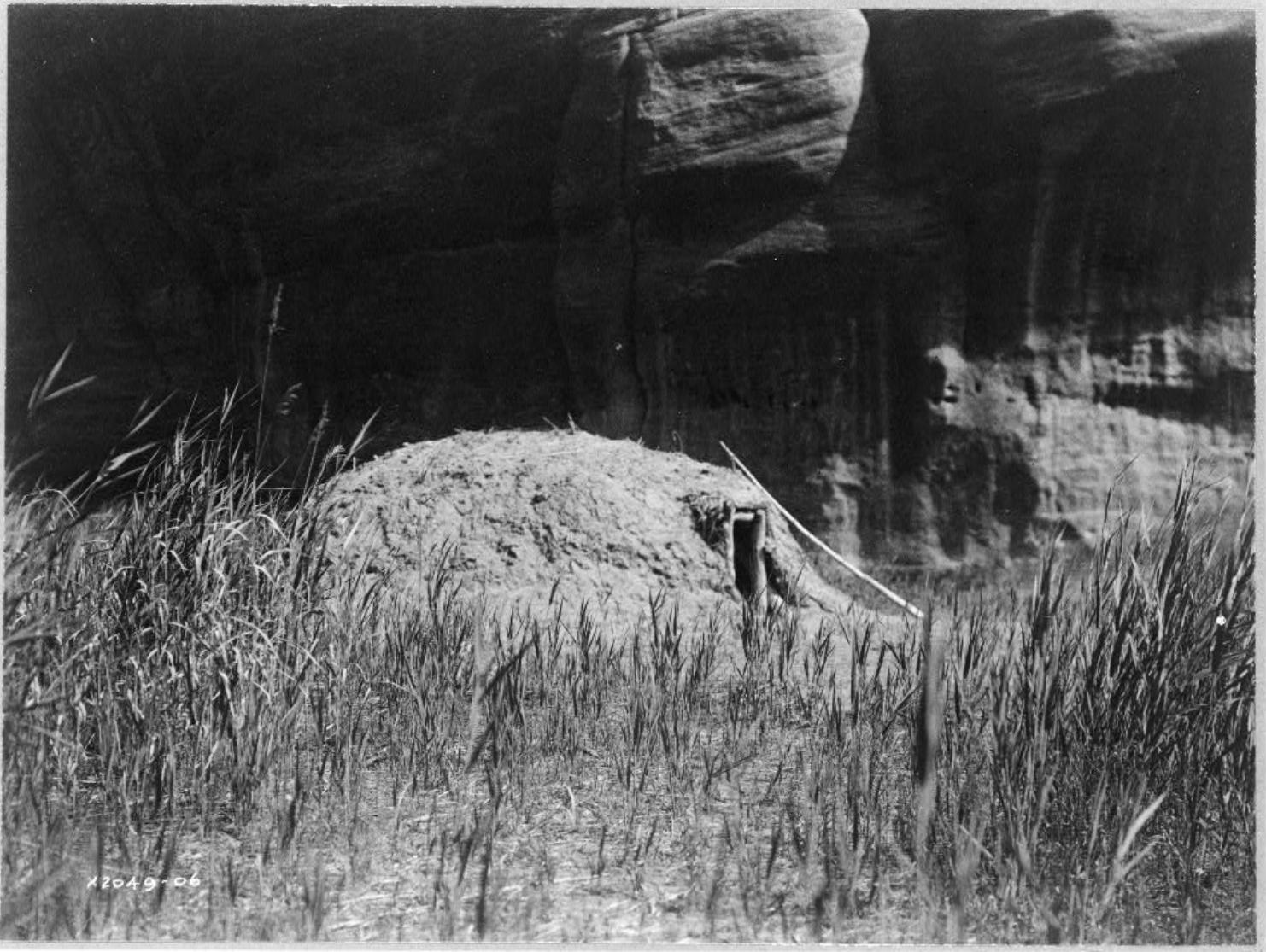


HABS

ARIZ., II-SAC.V

5-1





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<http://library2.usask.ca/native/nphoto/265.jpg>

# Building Design



## "Whole Buildings" Strategy:

Existing R&D programs, building technologies, and components tied together by Systems Integration and Computerized Design Tools.

### Passive Solar Strategies

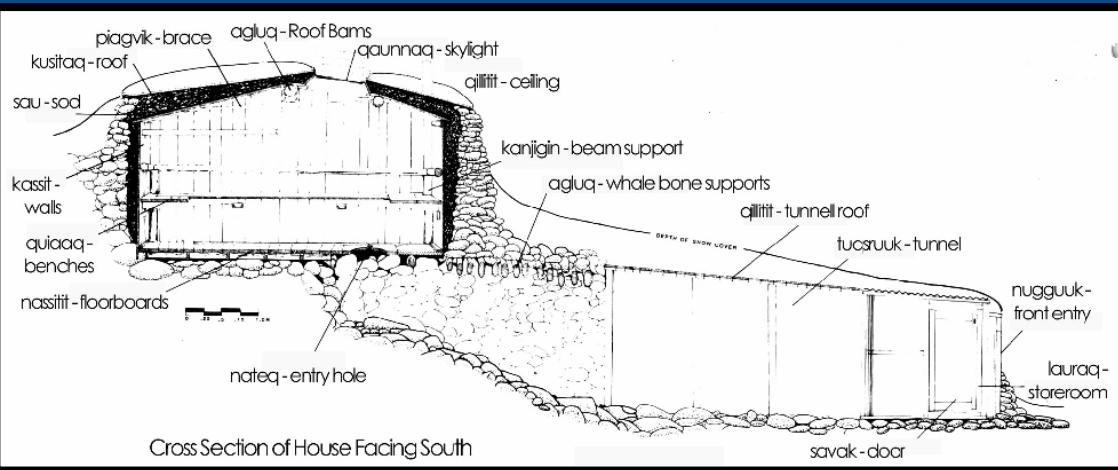
Siting and orientation, glazing size and location, and shading strategies contribute to a passive solar, or "climate-responsive," building.

### Advanced Technologies

Energy-saving appliances, advanced energy controls and thermostats, efficient heating and cooling systems, photovoltaics, and solar water heating systems.

### Energy-Efficient Materials

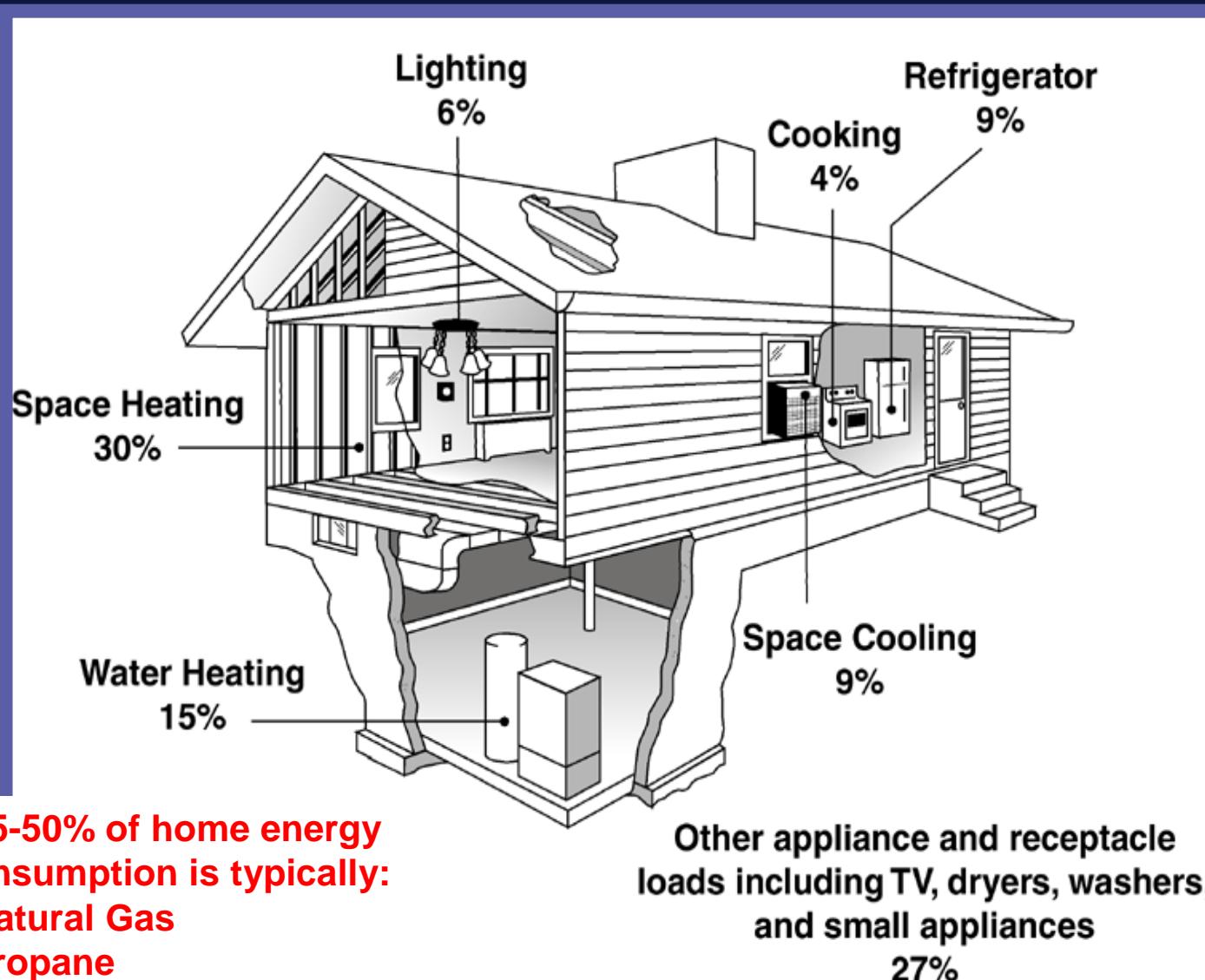
Superior building materials, including high-efficiency windows, insulation, brick, concrete masonry, and interior finish products.



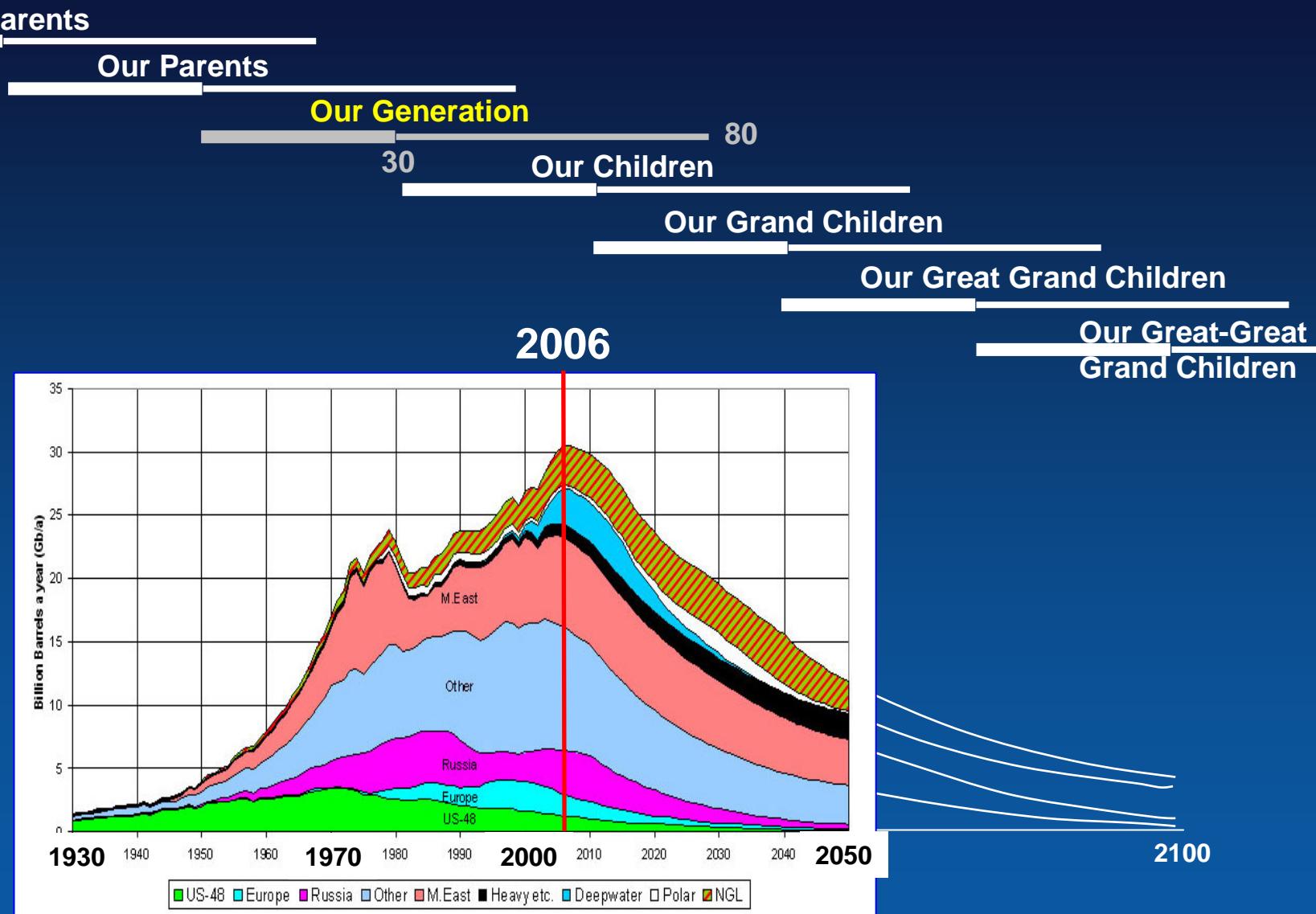
Cross Section of House Facing South



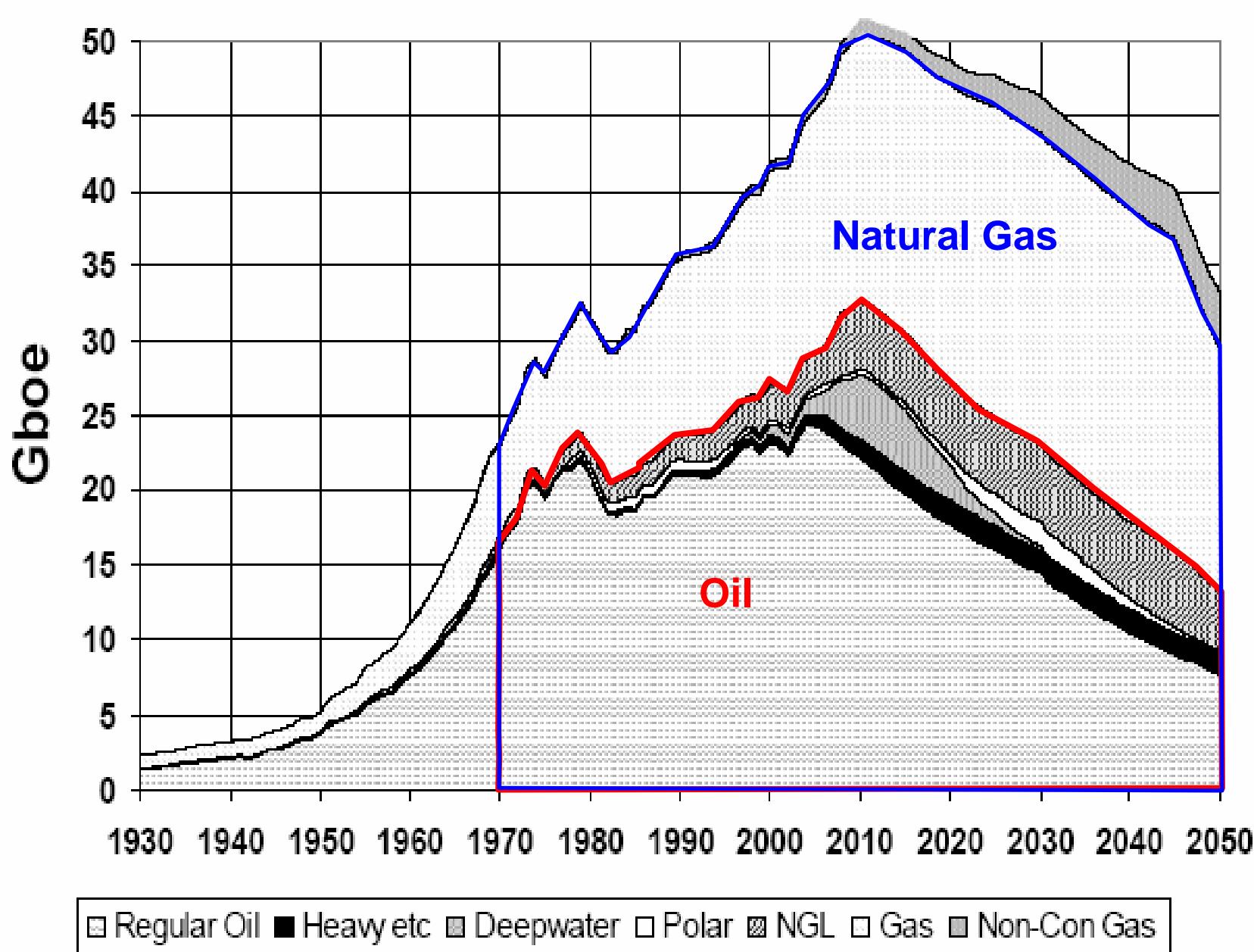
# Typical Residential Energy Use Profile



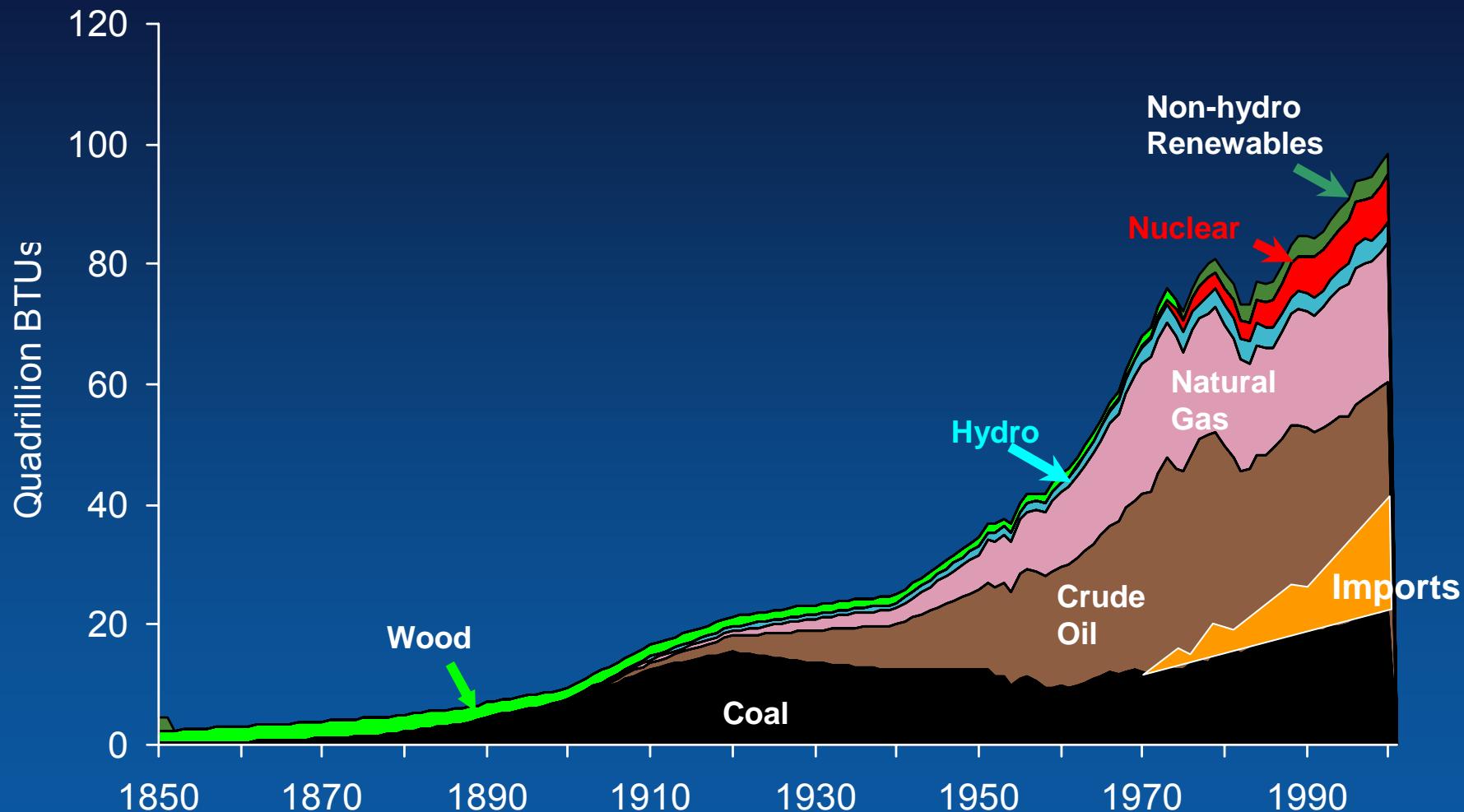
# *7 Generations Span The Age of Oil*



Peak Oil Graph from: ASPO.com - Colin Campbell 2004

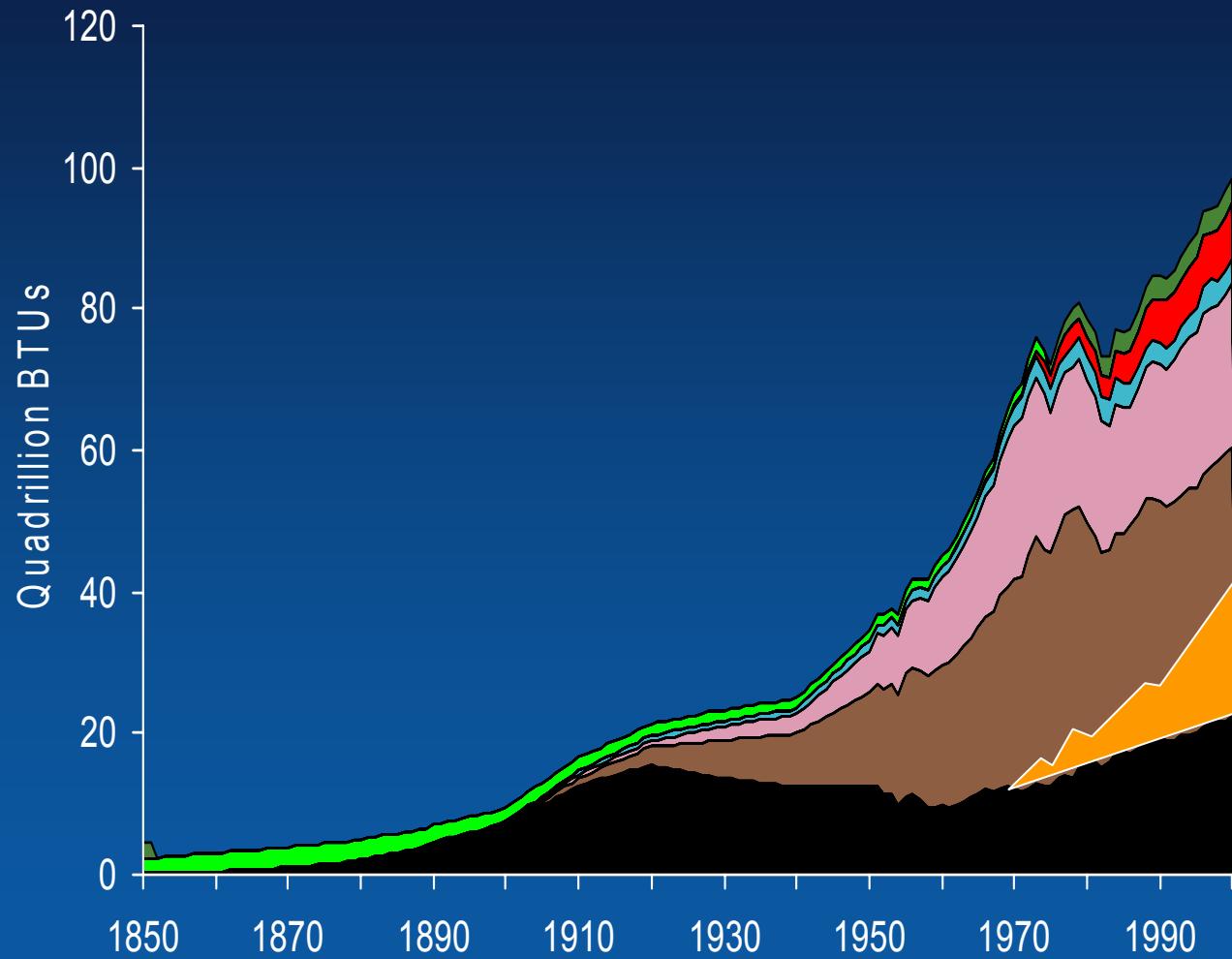


# U.S. Energy Consumption by source - 1850-2000

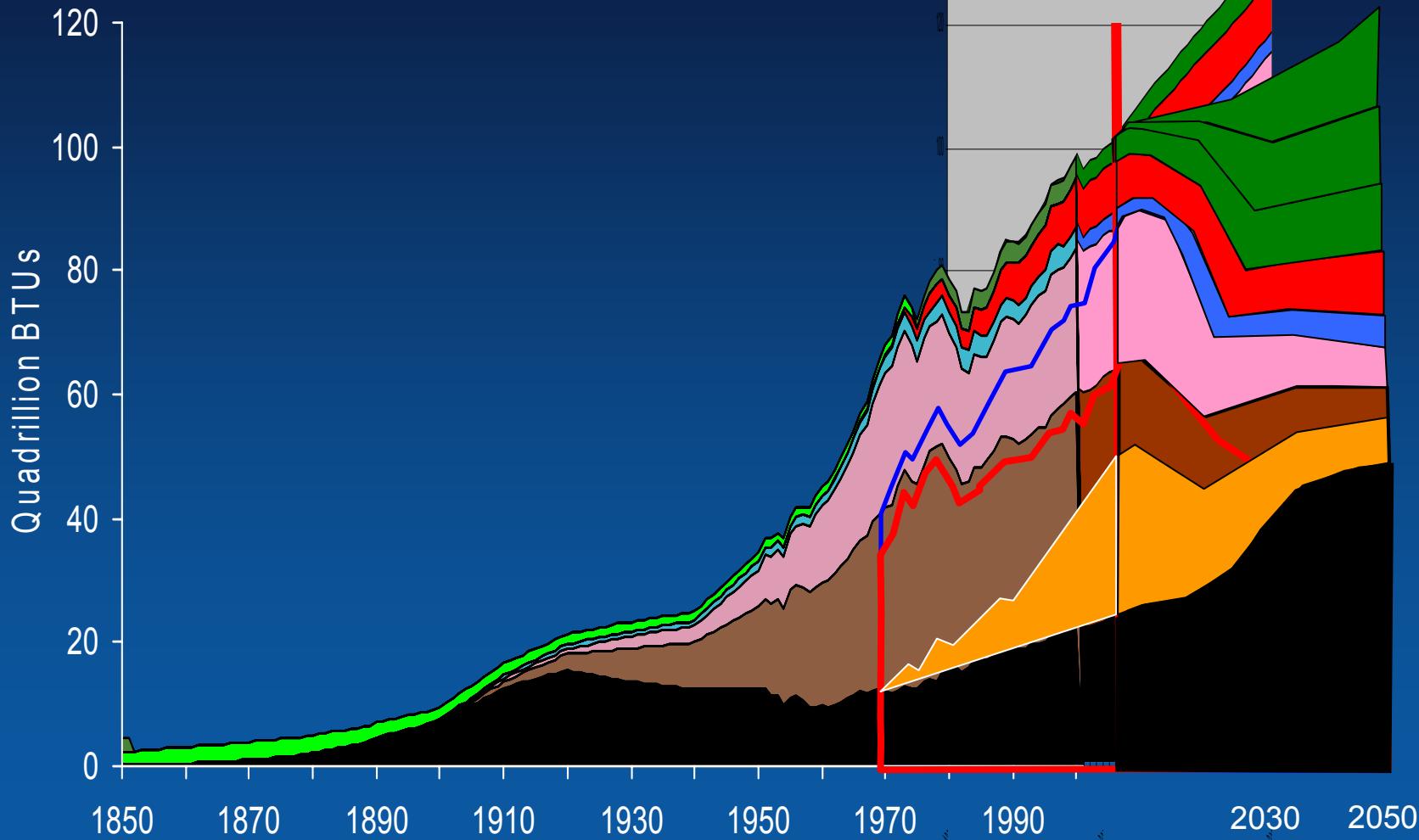


Source: 1850-1949, Energy Perspectives: A Presentation of Major Energy and Energy-Related Data, U.S. Department of the Interior, 1975; 1950-2000, Annual Energy Review 2000, Table 1.3.

**EIA**  
**Data/Forecast**



# EIA Data/Forecast



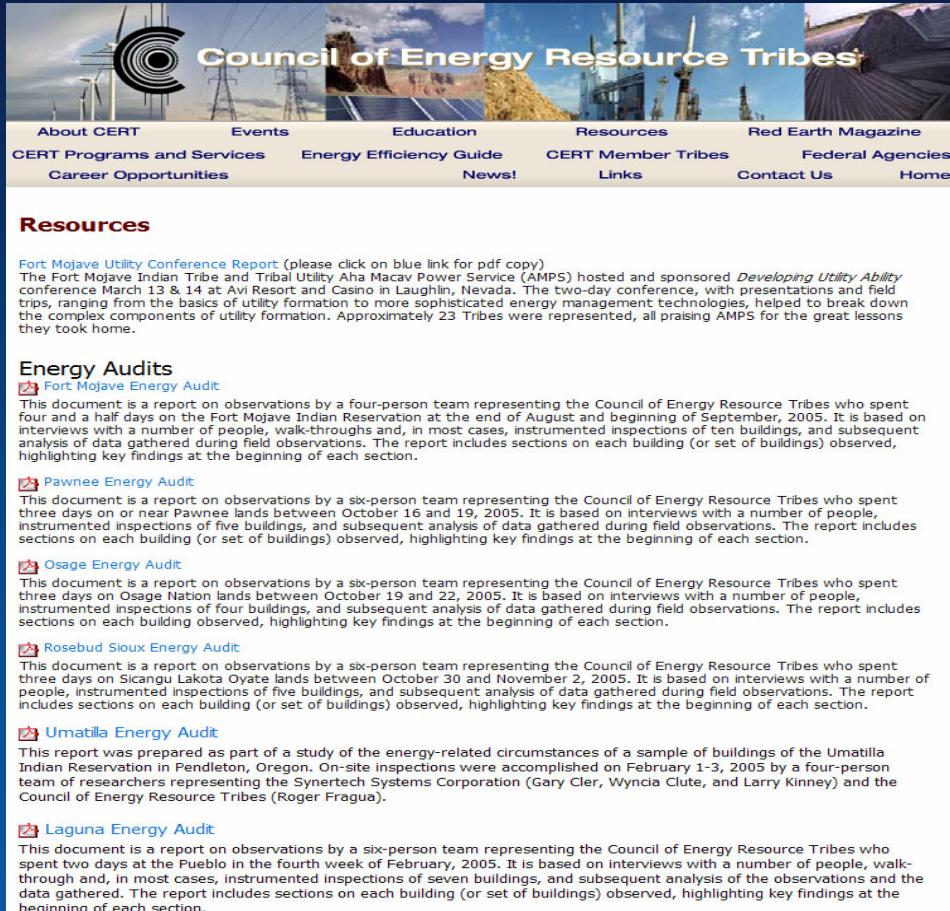


# Council of Energy Resource Tribes

The screenshot shows the homepage of the Council of Energy Resource Tribes (CERT) website. The header features a collage of energy-related images (wind turbines, power lines, industrial structures) and the text "Council of Energy Resource Tribes". Below the header is a navigation menu with links: About CERT, Events, Education, Resources, Red Earth Magazine, News!, Links, Contact Us, CERT Programs and Services, Energy Efficiency Guide, CERT Member Tribes, and Home. A red banner below the menu reads "CERT Energy Efficiency Guide". The main content area includes sections for Energy Efficiency Codes, Beyond Codes, Energy Efficiency in Indian Country, Technical Assistance, Funding, and Additional Resources. A "YOU ARE HERE" breadcrumb trail indicates the user is at the Energy Efficiency Guide page. To the right, there's a section titled "ONLINE SURVEY" with a call to action for users to help improve the guide. Below that is a graphic of a computer monitor and a clipboard. Another section discusses the "Power Is in Your Hands" campaign, mentioning the Alliance to Save Energy and the American Gas Association. At the bottom, there's a news snippet about "Energy Tab: Zero" by Steve Raabe from the Denver Post, dated 10/22/05. The footer contains the website address "www.CERTRedEarth.com".

- Cooperative Agreement
- CERT Energy Audits
- 7 Tribes 5 climates
- Tribal buildings, facilities, industry, homes
- Professional Wx experts

# Council of Energy Resource Tribes



The screenshot shows the homepage of the Council of Energy Resource Tribes. At the top is a banner featuring four images: wind turbines, power lines, solar panels, and industrial structures. Below the banner is the website's logo, which consists of a stylized 'C' made of concentric arcs. To the right of the logo, the text "Council of Energy Resource Tribes" is written in a serif font.

The main navigation menu is located below the banner:

- About CERT
- Events
- Education
- Resources
- Red Earth Magazine
- CERT Programs and Services
- Energy Efficiency Guide
- CERT Member Tribes
- Federal Agencies
- Career Opportunities
- News!
- Links
- Contact Us
- Home

A red horizontal bar contains the text "Resources".

**Fort Mojave Utility Conference Report** (please click on blue link for pdf copy)  
The Fort Mojave Indian Tribe and Tribal Utility Aha Macav Power Service (AMPS) hosted and sponsored *Developing Utility Ability* conference March 13 & 14 at Avi Resort and Casino in Laughlin, Nevada. The two-day conference, with presentations and field trips, ranging from the basics of utility formation to more sophisticated energy management technologies, helped to break down the complex components of utility formation. Approximately 23 Tribes were represented, all praising AMPS for the great lessons they took home.

**Energy Audits**

 [Fort Mojave Energy Audit](#)  
This document is a report on observations by a four-person team representing the Council of Energy Resource Tribes who spent four and a half days on the Fort Mojave Indian Reservation at the end of August and beginning of September, 2005. It is based on interviews with a number of people, walk-throughs and, in most cases, instrumented inspections of ten buildings, and subsequent analysis of data gathered during field observations. The report includes sections on each building (or set of buildings) observed, highlighting key findings at the beginning of each section.

 [Pawnee Energy Audit](#)  
This document is a report on observations by a six-person team representing the Council of Energy Resource Tribes who spent three days on or near Pawnee lands between October 16 and 19, 2005. It is based on interviews with a number of people, instrumented inspections of five buildings, and subsequent analysis of data gathered during field observations. The report includes sections on each building (or set of buildings) observed, highlighting key findings at the beginning of each section.

 [Osage Energy Audit](#)  
This document is a report on observations by a six-person team representing the Council of Energy Resource Tribes who spent three days on Osage Nation lands between October 19 and 22, 2005. It is based on interviews with a number of people, instrumented inspections of four buildings, and subsequent analysis of data gathered during field observations. The report includes sections on each building (or set of buildings) observed, highlighting key findings at the beginning of each section.

 [Rosebud Sioux Energy Audit](#)  
This document is a report on observations by a six-person team representing the Council of Energy Resource Tribes who spent three days on Sicangu Lakota Oyate lands between October 30 and November 2, 2005. It is based on interviews with a number of people, instrumented inspections of five buildings, and subsequent analysis of data gathered during field observations. The report includes sections on each building (or set of buildings) observed, highlighting key findings at the beginning of each section.

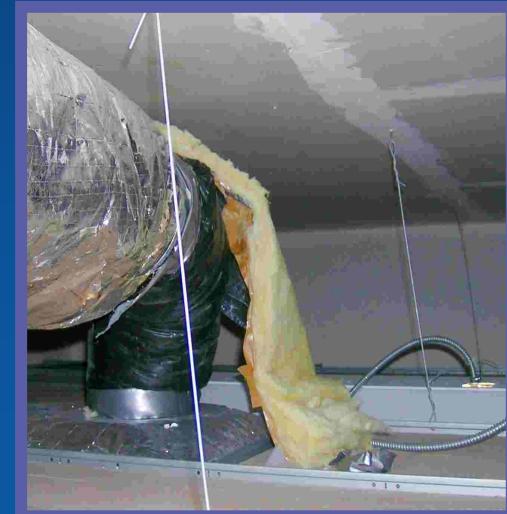
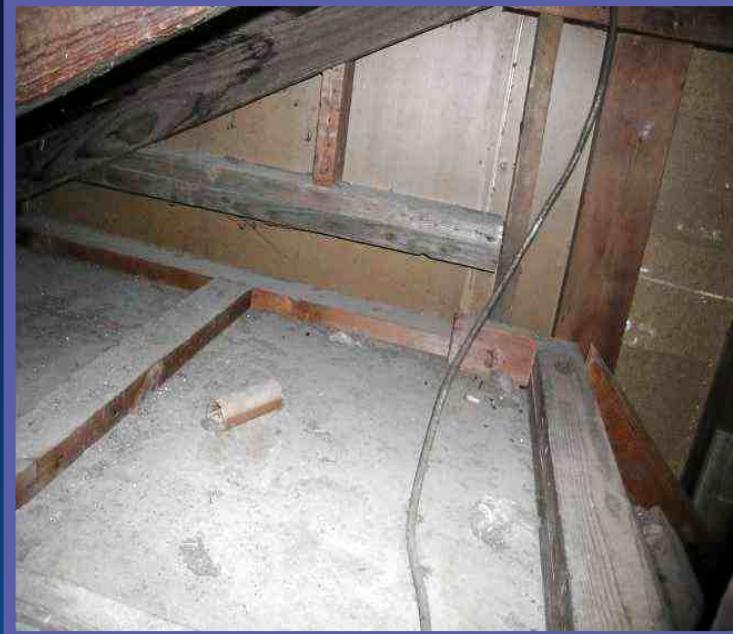
 [Umatilla Energy Audit](#)  
This report was prepared as part of a study of the energy-related circumstances of a sample of buildings of the Umatilla Indian Reservation in Pendleton, Oregon. On-site inspections were accomplished on February 1-3, 2005 by a four-person team of researchers representing the Synertech Systems Corporation (Gary Cler, Wynicia Clute, and Larry Kinney) and the Council of Energy Resource Tribes (Roger Fragua).

 [Laguna Energy Audit](#)  
This document is a report on observations by a six-person team representing the Council of Energy Resource Tribes who spent two days at the Pueblo in the fourth week of February, 2005. It is based on interviews with a number of people, walk-through and, in most cases, instrumented inspections of seven buildings, and subsequent analysis of the observations and the data gathered. The report includes sections on each building (or set of buildings) observed, highlighting key findings at the beginning of each section.

## General Findings

- Not built with EE in mind
- Fixes may not require \$\$\$
- Energy waste provides a large opportunity to save
- Start Tribal building codes

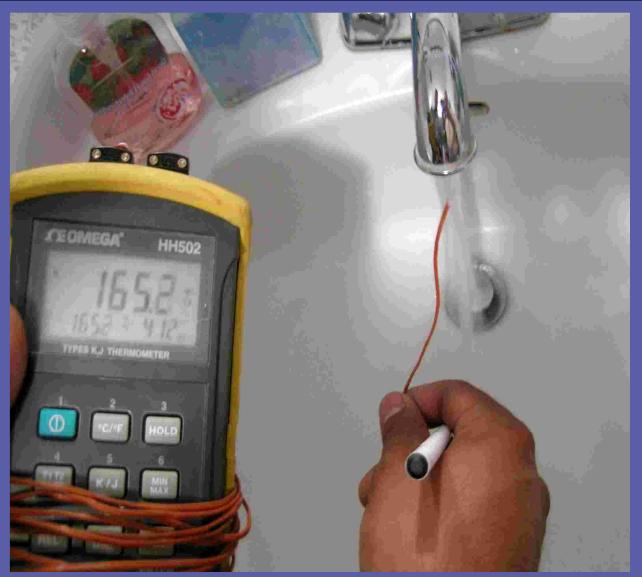
# Inadequate Insulation



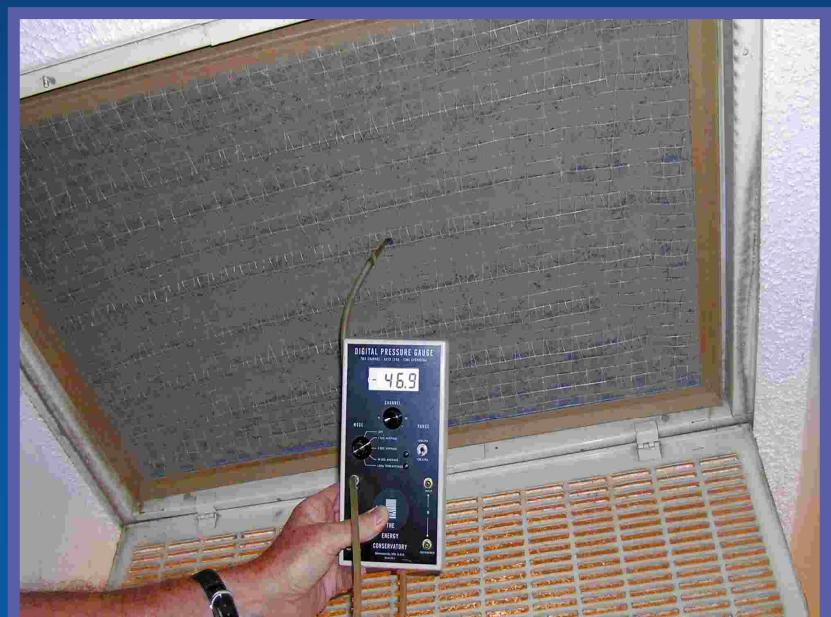
# Infiltration



# Controls



# HVAC & Appliance Maintenance

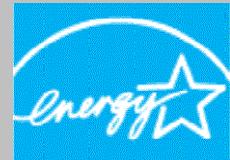


# Energy Efficiency Options



## Energy Star Appliances

Refrigerators – Half as much energy



Clothes Washers – Save up to \$110 per year



Oil & Gas Boilers – Save up to 10%



Programmable Thermostats – Save up to \$100 per year



## Efficient Lighting



If every American changed out 5 lights, we'd save \$6 billion/year and the equivalent of 21 power plants.



# Opportunity

Build Tribal  
Capacity

Create  
Savings

Enhance Tribal  
Sovereignty

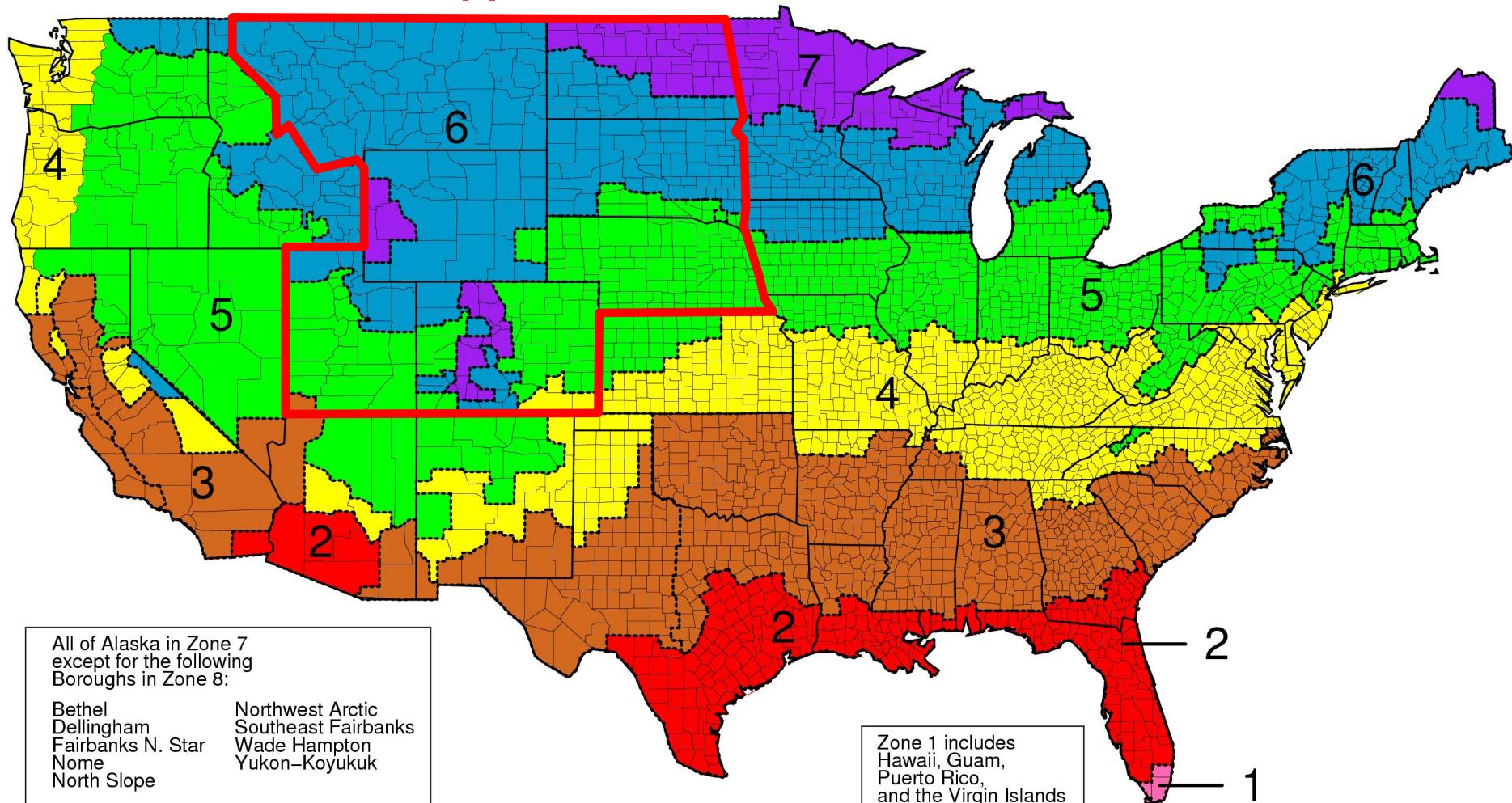
Improve Comfort  
Health & Safety

# **Federal Programs Overview**

- **US Dept. of Housing and Urban Development**
  - Office of Native American Programs (ONAP)
- **US Dept. of Interior - Bureau of Indian Affairs**
  - Home Improvement Program
- **US Dept. of Energy**
  - Weatherization Assistance Program
- **US Dept. of Health and Human Services**
  - Low Income Home Energy Assistance Program (LIHEAP)
- **US Dept. of Agriculture**
  - USDA Rural Development Section 9006

# Climate Zones

## ONAP Upper Plains



# **HUD - Office of Native American Programs (ONAP) (a.k.a. NAHASDA)**

- Ensure safe, decent and affordable & energy efficient housing to Native American families
- Create economic opportunities for Tribes and Indian housing residents
- Assist Tribes in the formulation of plans and strategies for community development
- Assure fiscal integrity in the operation of programs.

# Energy Policy Act (EPAct) of 2005

## Title V – Indian Energy

- Other Authorities
  - Energy Efficiency in Federally Assisted Housing (Section 506)
    - (a) In General – The Secretary of Housing and Urban Development shall promote energy conservation in housing that is located on Indian land and assisted with Federal resources through –
      - (1) The use of energy-efficiency technologies and innovations (including the procurement of energy-efficient refrigerators and other appliances)
      - (2) The promotion of shared savings contracts; and
      - (3) The use and implementation of such similar technologies and innovations the Secretary of Housing and Urban Development considers appropriate
    - (b) AMENDMENT – Section 202(2) of the Native American Housing and Self-Determination Act of 1996 (25 U.S.C. 4132(2)) is amended by inserting “improvement to achieve greater energy efficiency,” after “planning”.

# **HUD - ONAP**

**US Dept of Housing and Urban Development  
(HUD)**



**Office of Native American Programs  
(ONAP) with 6 Regional Offices**



**Discretionary  
Competitive  
Block Grants**



**Formula  
Block Grants**

# HUD ONAP

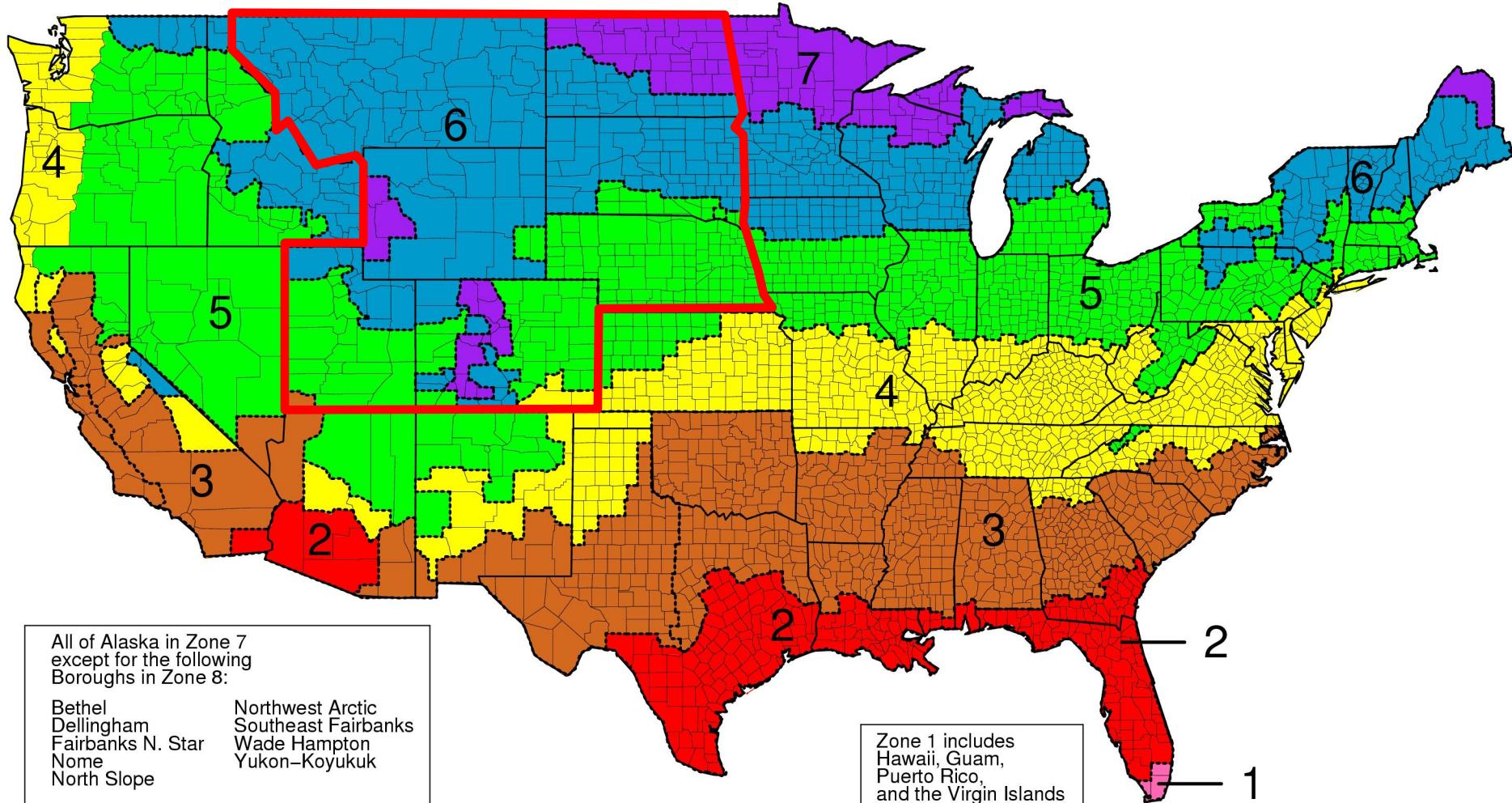
- **Discretionary Funds - SuperNOFA**
  - Indian Community Development Block Grant (ICDBG) Program
    - FY 2006 funding: \$8 M to Northern Plains
    - FY 2006 cycle ended May 31
- **Key Phrases:**
  - 70% of \$\$ go directly to “low and moderate income” persons
  - Leveraged resources
  - Measurable outcomes and outputs
  - Economic development including microenterprises ( $\leq 5$  people)  
(ESCO startup?)
  - Public facilities
  - Housing rehabilitation per-unit limit of \$50K in NP region
  - Assistance to Community Based Development Organizations
  - Energy conservation
  - Comprehensive planning
  - Energy efficiency

# **HUD ONAP**

- **Formula Grants – Indian Housing Block Grants (IHBG)**
  - \$ go to Tribally Designated Housing Entity (TDHE)
  - Annual Indian Housing Plan (IHP)
  - Annual Performance Report (APR)
- Key Phrases
  - Five Year Housing Plan
  - One Year Housing Plan

# FY 2006 HUD IHBG Allocations

\$87.0 M Grants



# BIA

## Housing Improvement Program

- **Objective:** to provide safe, decent and sanitary housing to very low income families with an emphasis on elderly and disabled families who have no other resource.

### Types of Assistance:

- Provide Housing Assistance that improves energy efficiency in renovation projects.
- Provide Housing Assistance that replaces dilapidated dwellings.
- Provides Housing Assistance for new construction.

# BIA Housing Improvement Program

Dept of Interior – Bureau of Indian Affairs



Office of Tribal Services



BIA Regional Offices (12)  
Great Plains & Rocky Mountain



Renovation of houses to “standard condition”  
New house building

# **BIA - HIP**

**Funding based on annual appropriation  
2006 -- \$22.2 Million**

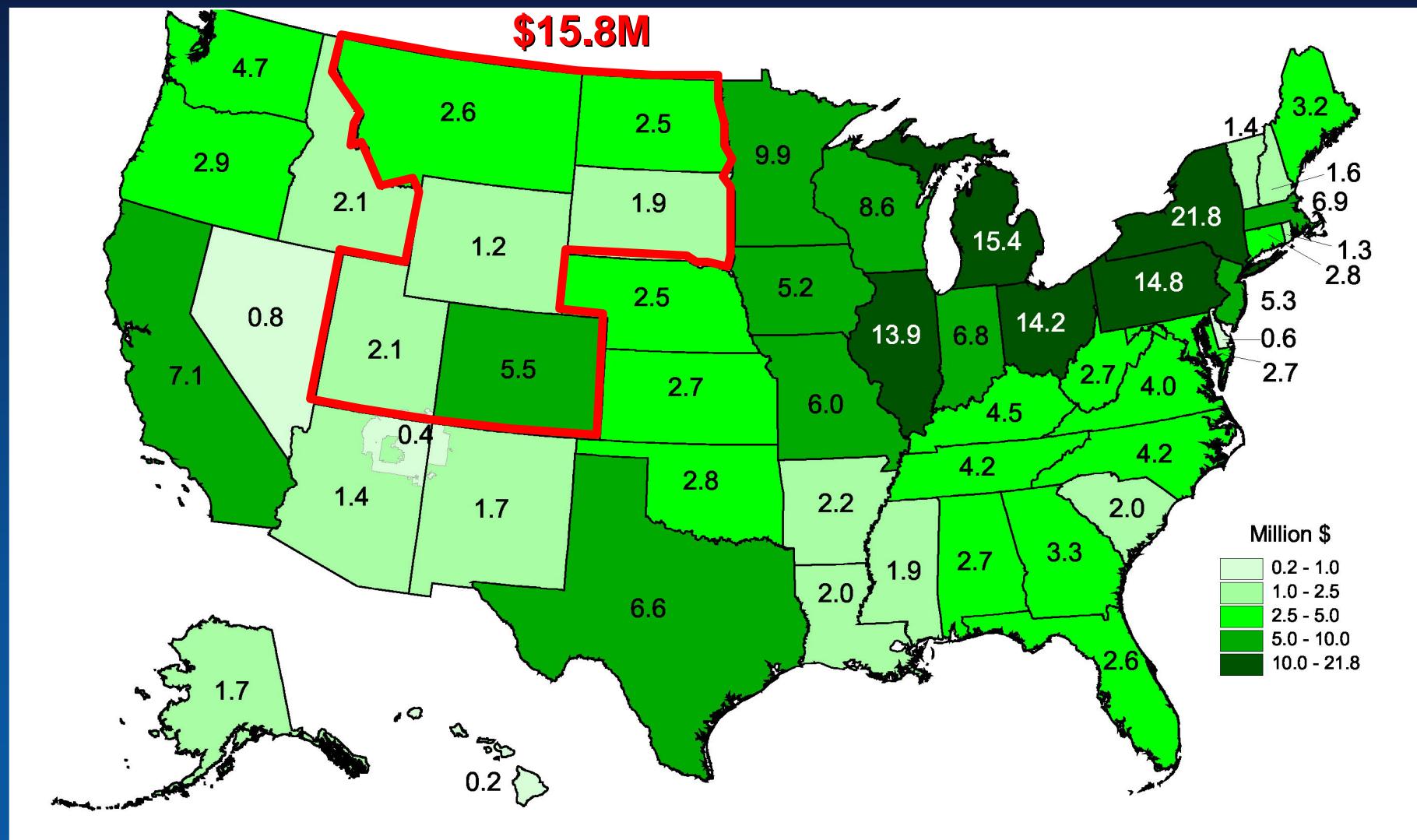
## **Application and Funding Sequence**

1. Eligible Applicant data due to Regional Office (RO) --August 1
2. RO Summary due to Central Housing Office-- September 1
3. Central Office Notice to RO of Funds available 15 days following appropriation
4. RO Notice to Central Office of Tribal Distribution Amounts in Region- within 30 days of funds available for Distribution within Region
5. Central Office -- Tribal Services provides notice to Budget Office of amounts to be distributed to ROs Office of Self-Governance – within 15 days of notice of distribution amounts from RO

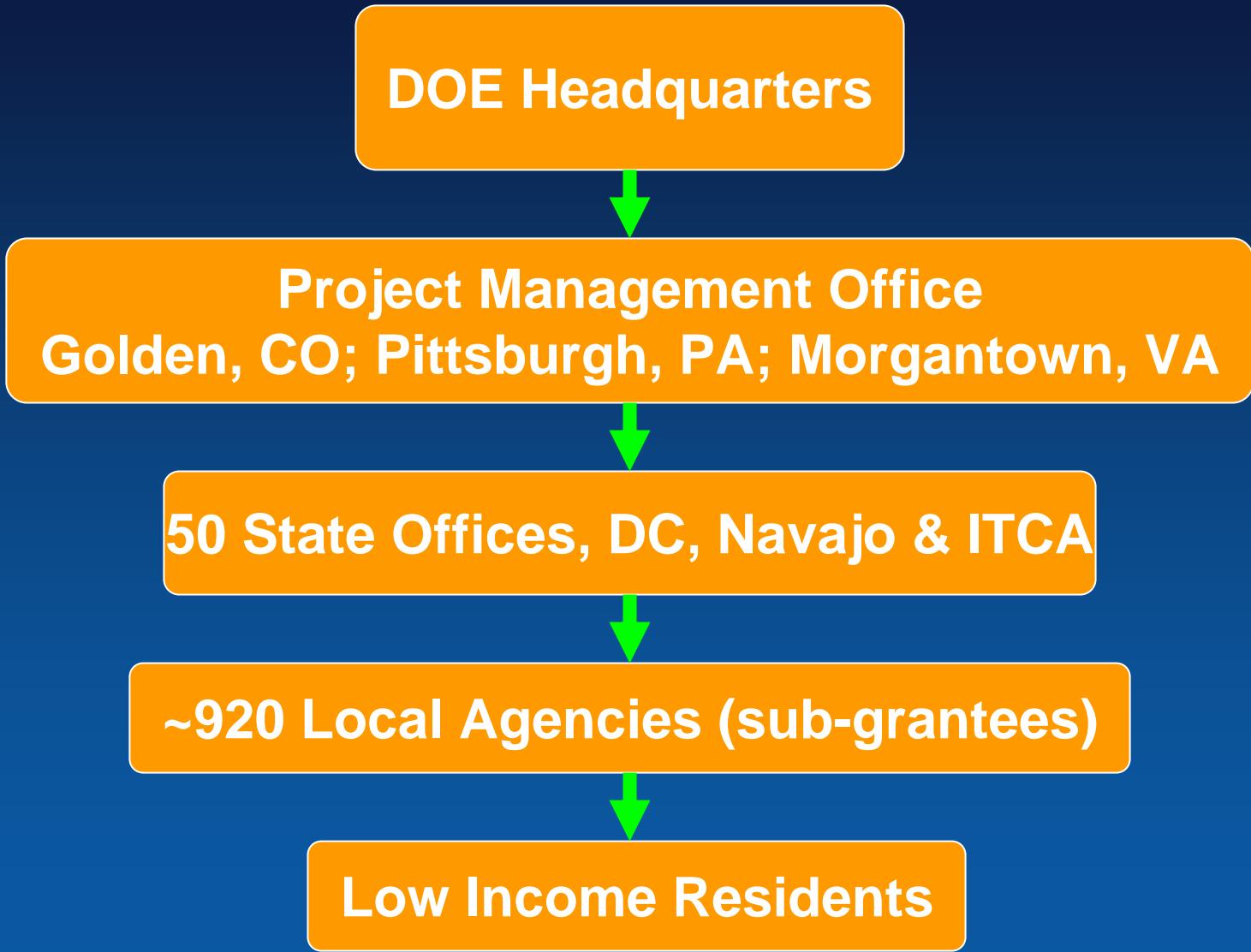
# **DOE** **Weatherization Assistance Program**

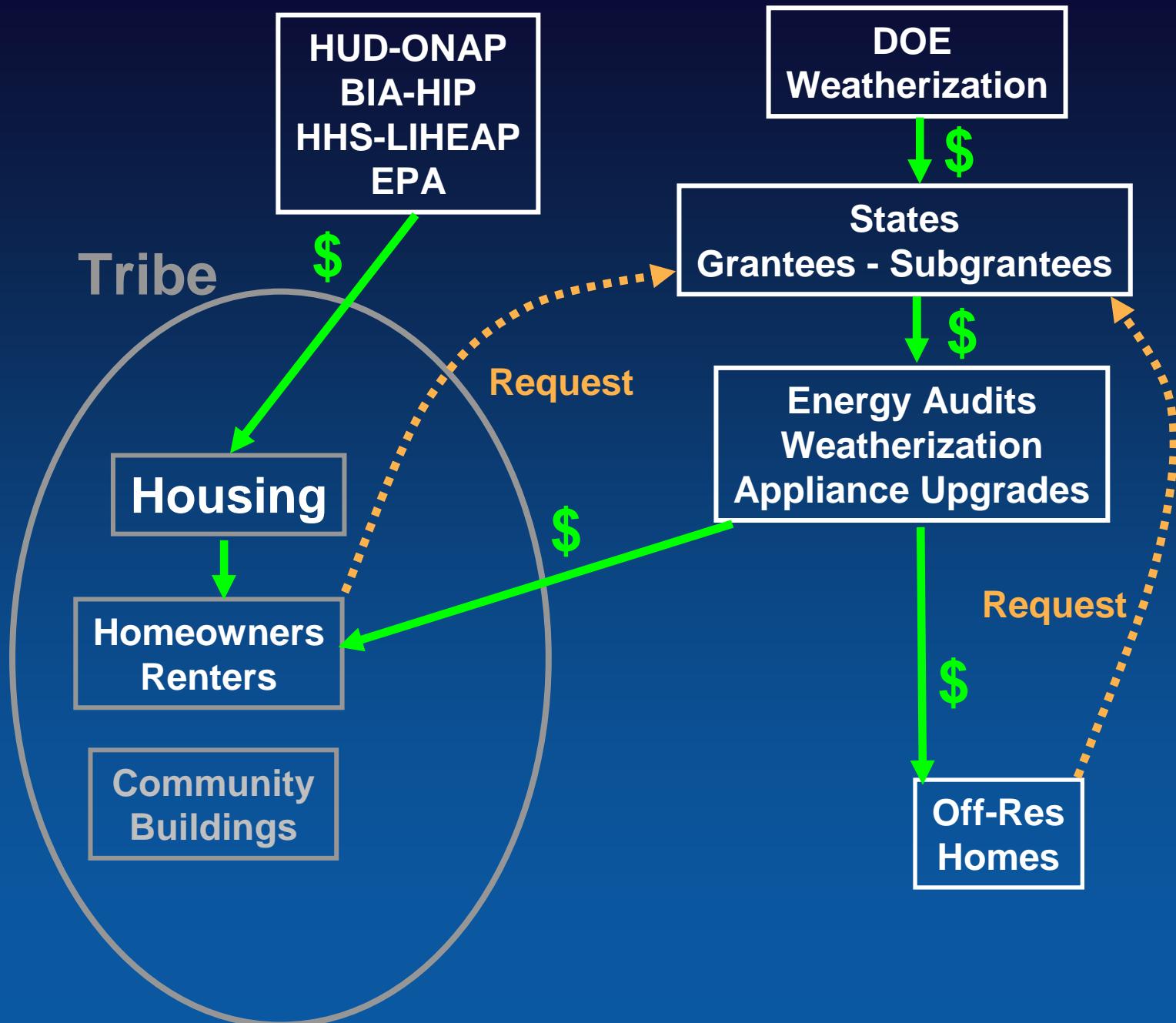
- Goal: “To reduce energy costs for low-income households by increasing the energy efficiency of their homes, while ensuring their health and safety”
- Eligibility includes: “Elderly, people with disabilities, families with children, and those with high energy burden, in all types of housing—single family, mobile homes, and multi-family buildings; owners and renters.”

# FY05-06 DOE Weatherization Grant Awards



# DOE – Weatherization





# **Weatherization Assistance Program Contacts**

**DOE - Golden Field Office**  
1617 Cole Boulevard  
Golden, CO 80401

## **DOE Weatherization Project Managers**

Carole Gates  
303- 275-4848

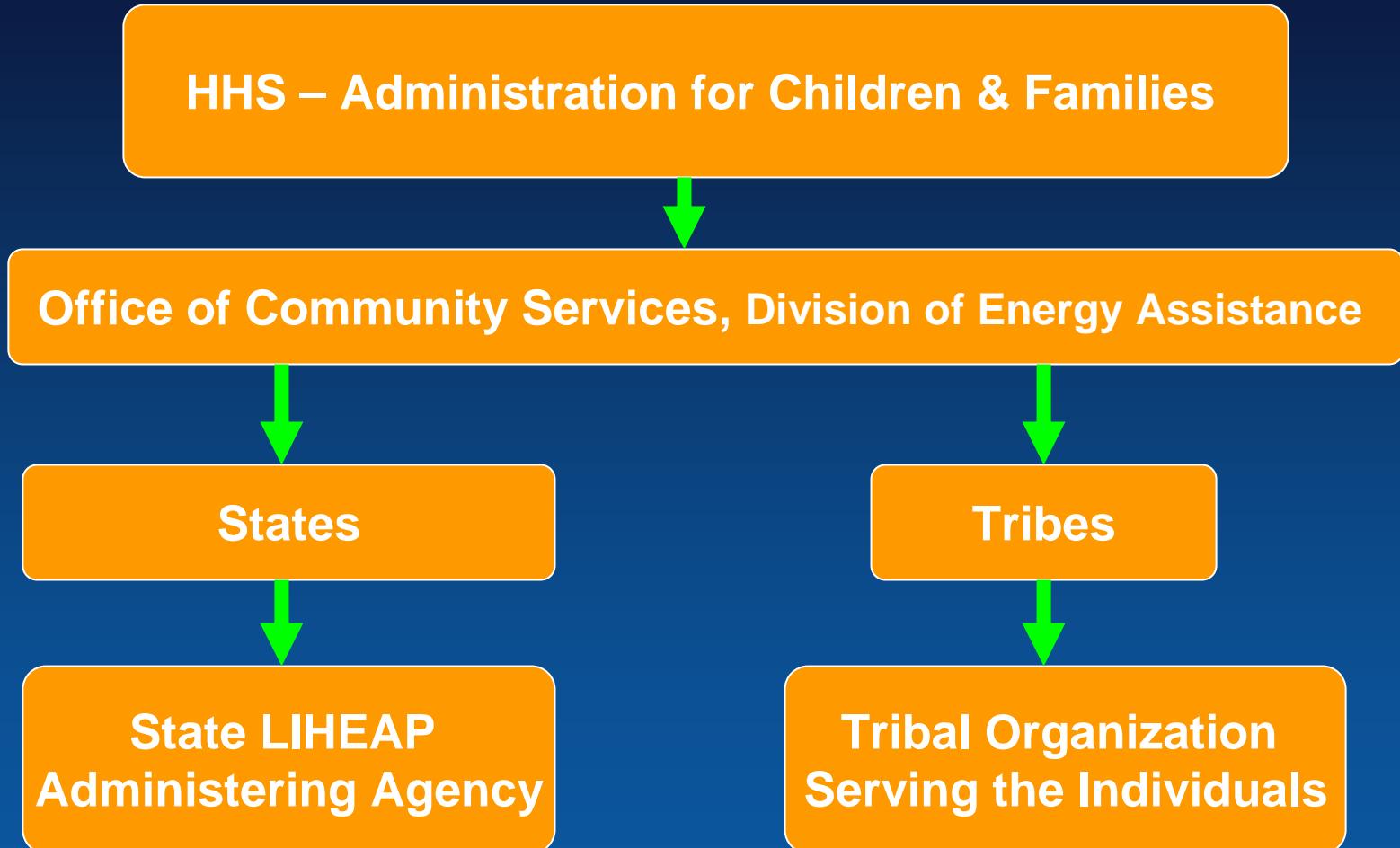
Rob DeSoto  
303-275-4843

# HHS

## Low Income Home Energy Assistance Program

- Federally-funded program that helps low-income households with their home energy bills.
- 3 Assistance Types based on income:
  - **Bill payment assistance.**
  - **Energy crisis assistance.**
  - **Weatherization and energy-related home repairs.**

# HHS - LIHEAP



20 of 35 ONAP-NP Tribes have a LIHEAP Administrator

# LIHEAP Funding Formula

- Formula grant based on number of low-income households in State or Tribe
- “Low Income” established by Social Security Act statutes, US Code Title 38 Veterans’ Benefits, or up to 150% of State poverty level.

# LIHEAP Weatherization Provisions

- Up to 5% of funds to provide services that encourage and enable households to reduce their home energy needs, and thereby the need for energy assistance, including needs assessments (audits), counseling, and assistance with vendors.
- Up to 15% of funds for residential weatherization or other energy-related home repair.
- Up to 25% of funds for weatherization or energy-related home repair, with a one-year HHS waiver.

# USDA – Rural Development Eligibility Requirements

- Rural -- Any area without an urbanized area (>50,000 inhabitants) nearby.
- Small business - Must be either:
  - A private entity including a sole proprietorship, partnership, corporation, cooperative, or
  - An electric utility including a Tribal or Governmental Electric Utility that provides service to rural consumers on a cost-of-service basis without support from public funds or subsidy from the Government authority establishing the district. These entities must operate independent of direct Government control.
- Demonstrated financial need -- if applying for a grant, the applicant must demonstrate that it is unable to finance the project from its own and commercially available resources without grant assistance, or that the project proposed by the applicant cannot achieve the income and cash-flows to sustain it financially over the long term without grant assistance.

# **USDA – Rural Development**

## **Farm Bill – Section 9006**

- Applicants may qualify for a grant, a guaranteed loan, or a combination of both.
- Grant request must not exceed 25 percent of the eligible project costs. Energy efficiency grants can range from \$1,500 to \$250,000.
- Projects under \$200,000 total project costs qualify for a simplified application process.
- Loan guarantees can be for up to 50% of total eligible project costs. Guarantees can range from \$5,000 to \$10,000,000 per project.
- Projects can qualify for combined grant and loan guarantee, but the grant portion is still subject to the above limits and combined funding assistance cannot exceed 50% of total eligible project costs.

# Section 9006 Funding Activity FY 03 thru 05 Implementation



	No.	Amounts	Leveraged Funds
Biomass	119	\$29,757,021	\$197,116,700
Wind	121	27,809,516	446,418,325
Solar	17	1,442,243	3,559,375
Geothermal	4	380,283	1,140,872
Hybrid	9	2,439,832	185,455,600
Totals	<u>270</u>	<u>\$61,828,895</u>	<u>\$833,690,872</u>
Energy Efficiency	<u>165</u>	<u>\$4,927,655</u>	<u>\$15,833,480</u>

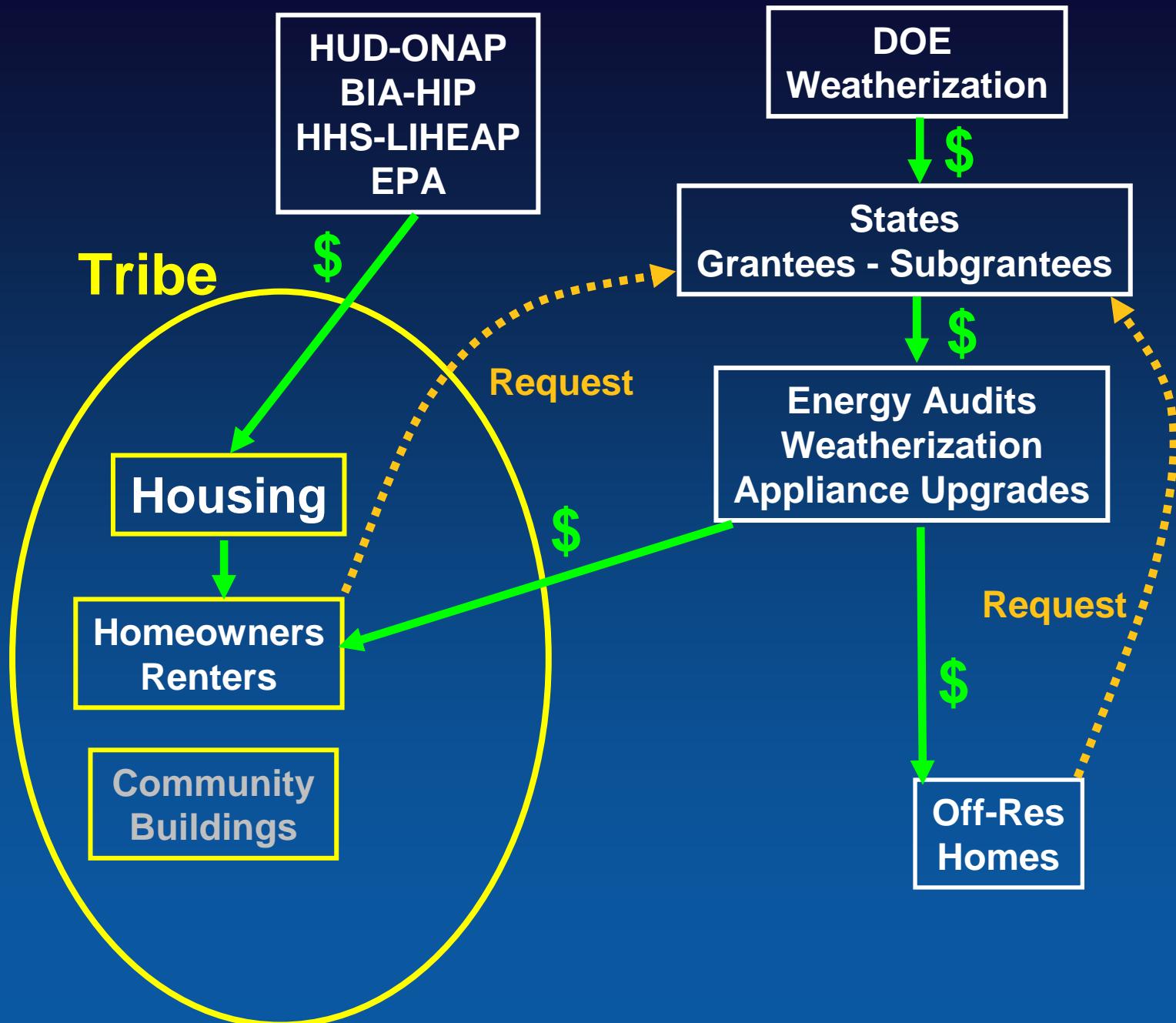


Figure A

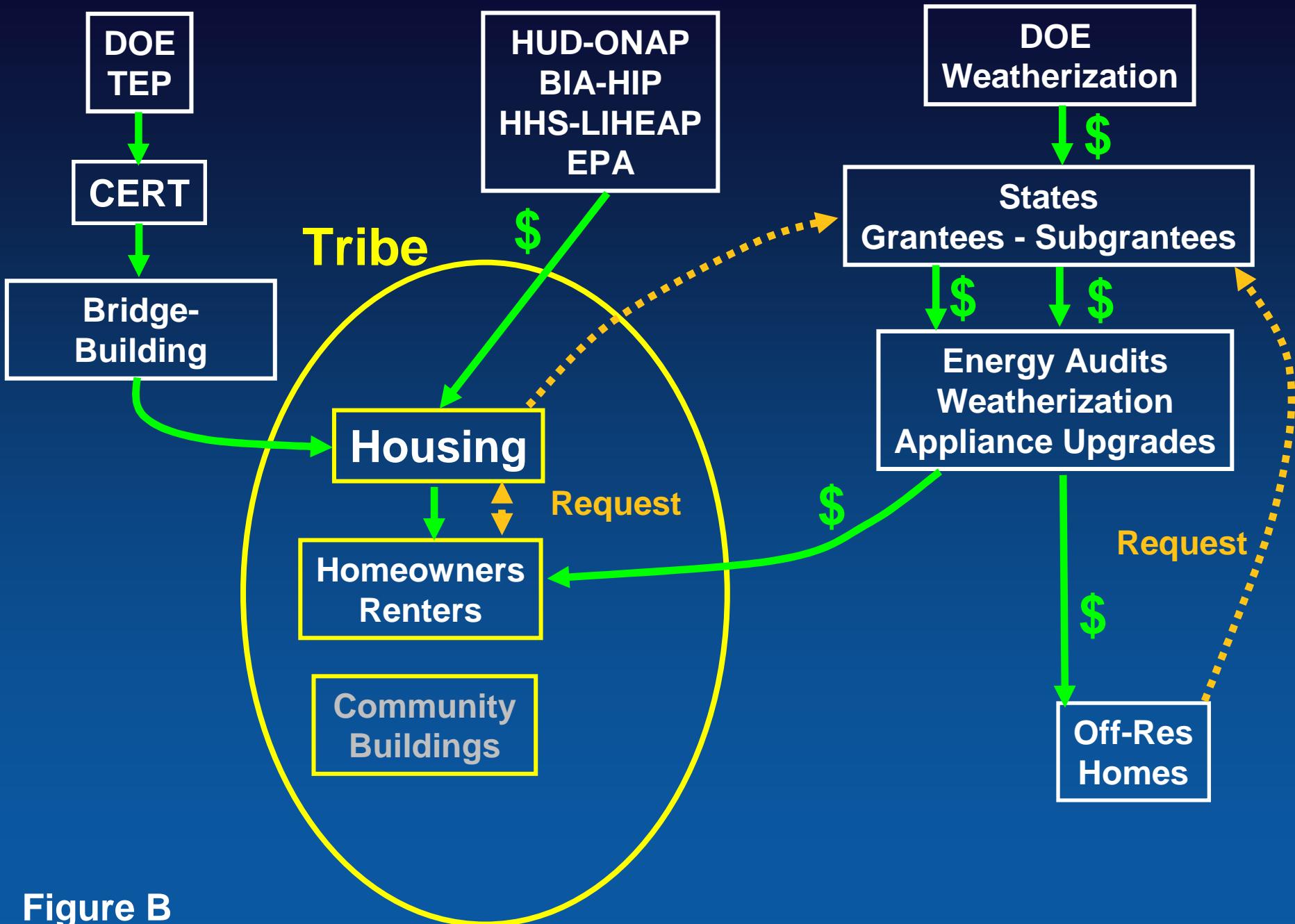
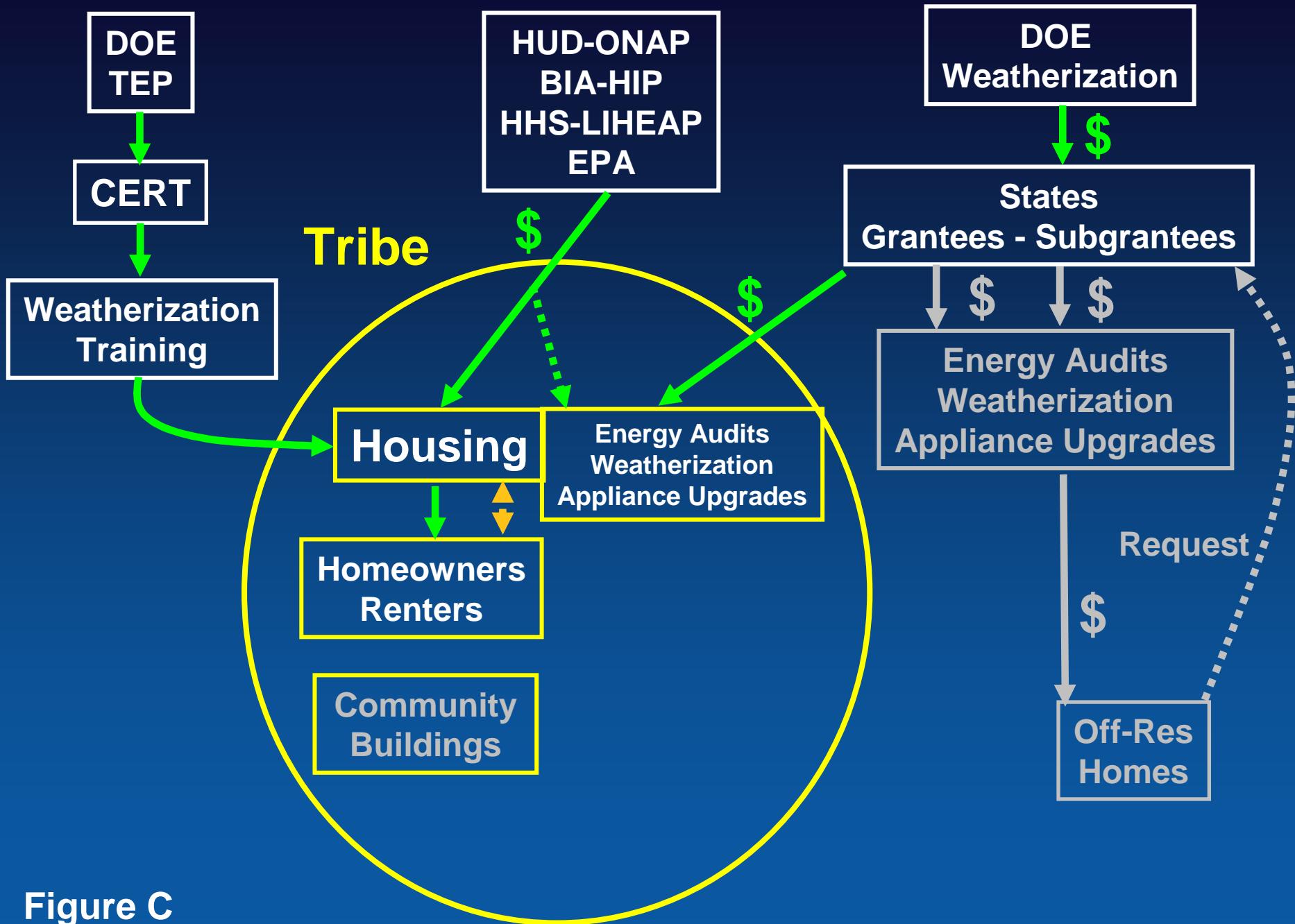
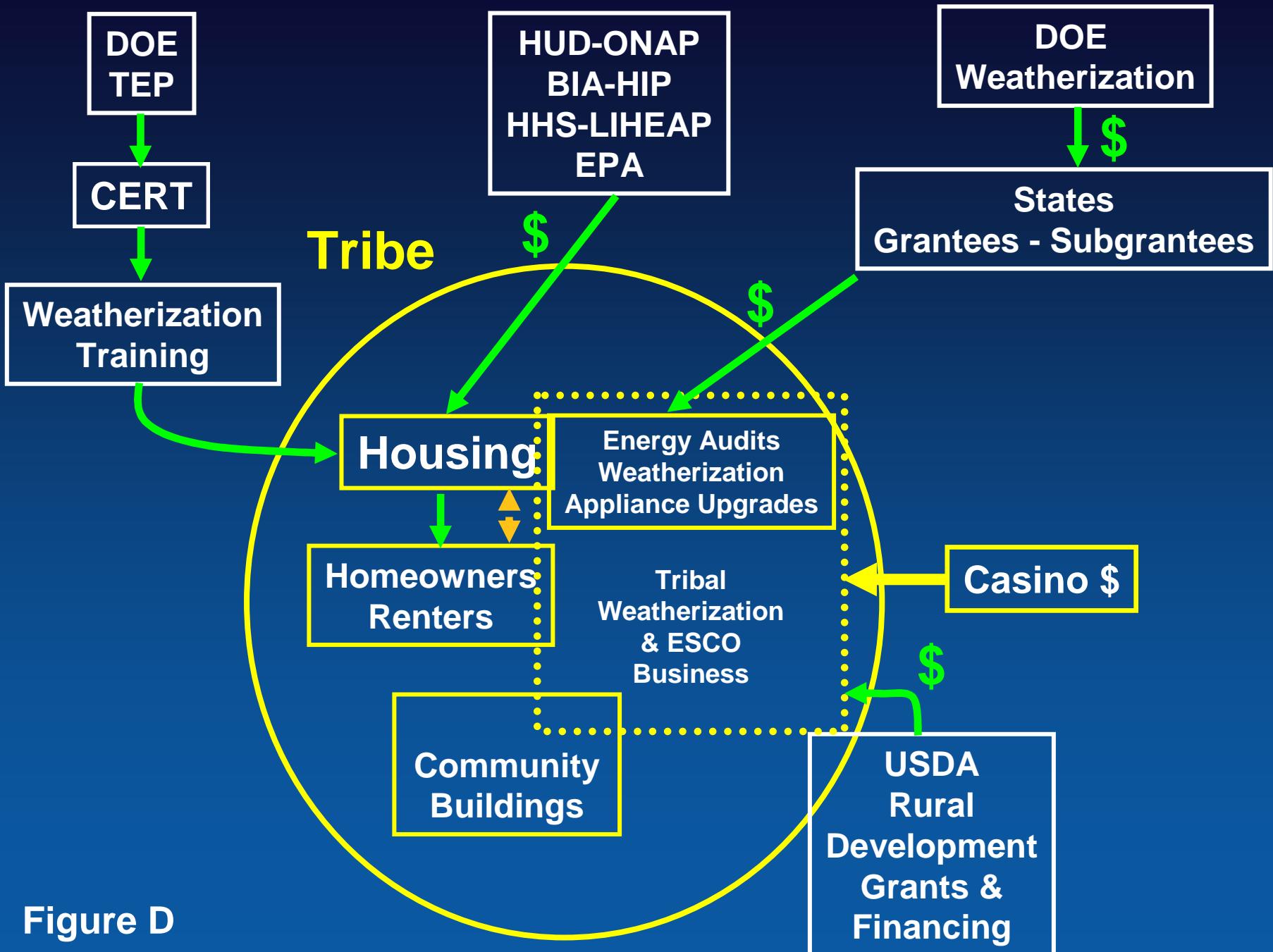


Figure B





**When you go home, build some internal bridges with your Housing Department**

**Encourage development of a Tribe-wide strategic energy plan**

**Put Tribal energy security on the radar screen at the Tribal Council**

**Add food security into the discussions**

# The Community Energy Development Challenge

