

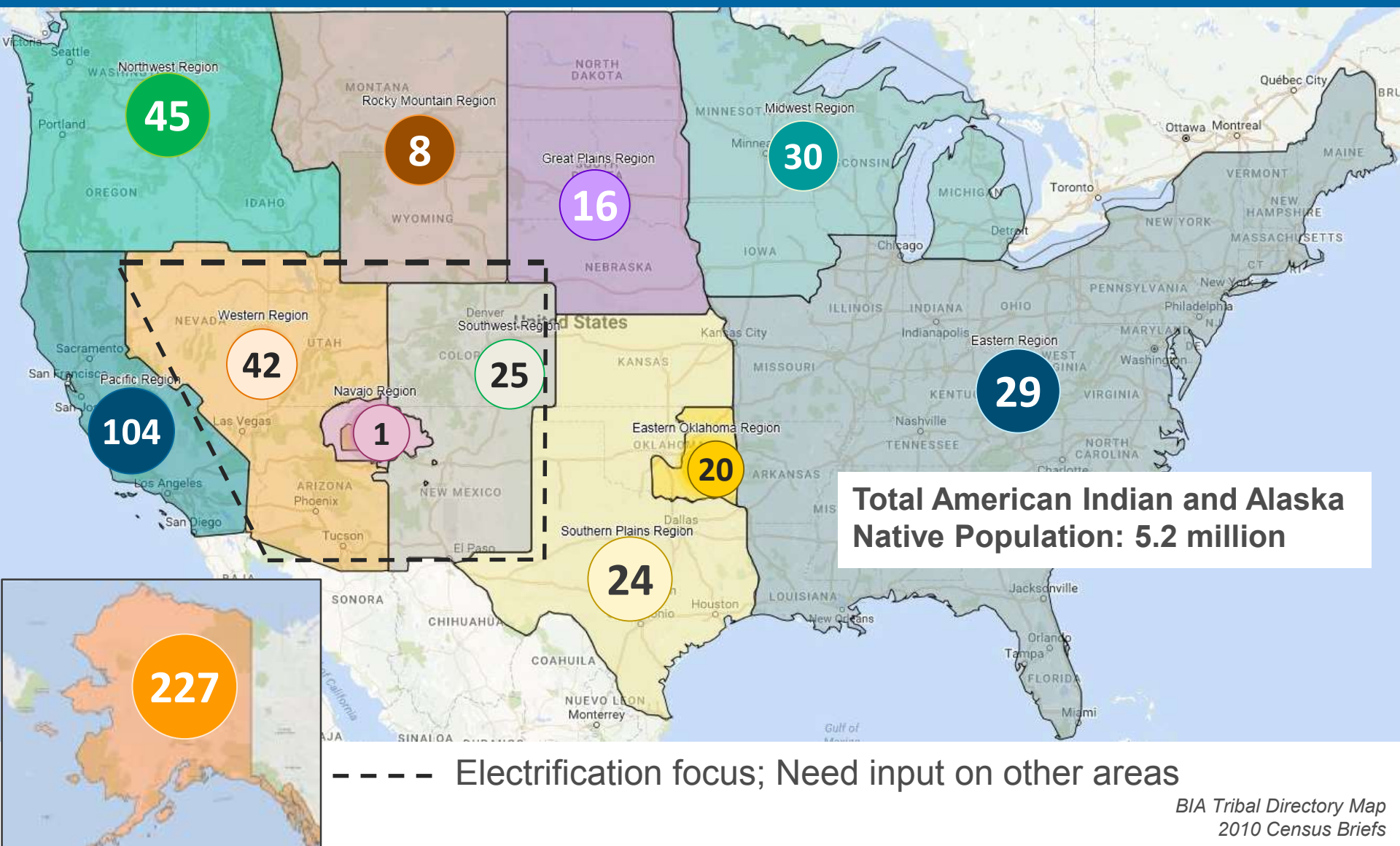


Full Electrification in Indian Country

Focus Area in DOE Energy Policy & Systems Analysis

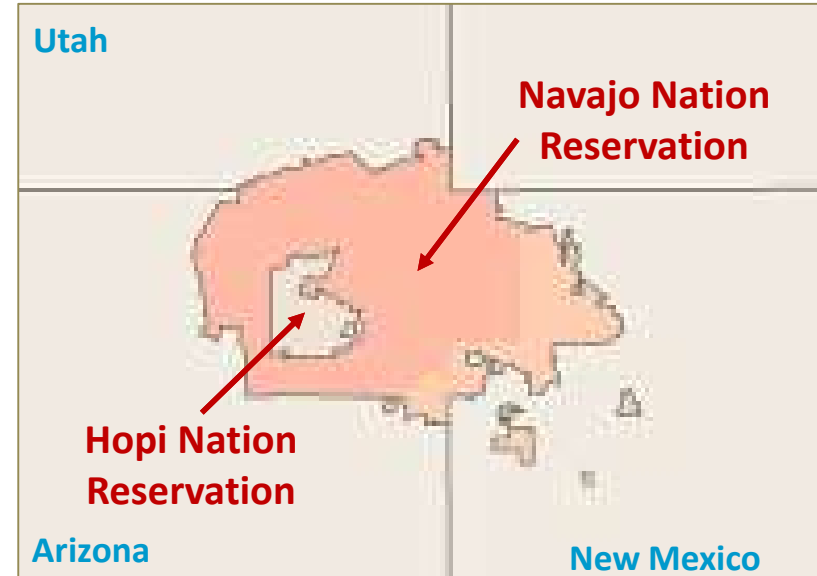
Office of Electricity Systems Analysis
Office of State, Local, and Tribal Policy Analysis

Map of Federally Recognized Tribes (BIA Regions)



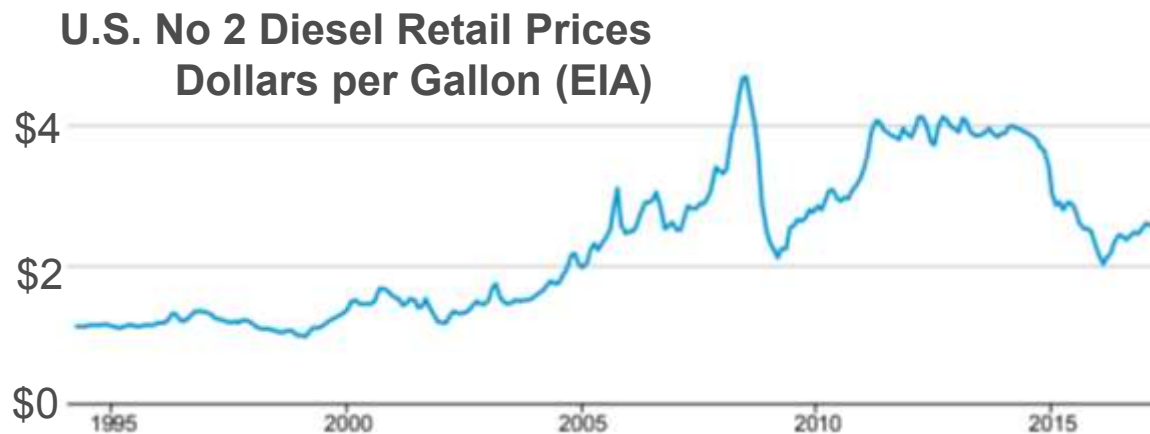
In Southwest U.S., grid extension presents a challenge

- Reliable, affordable electricity drives local economic growth & enables:
 - Running water & sewage infrastructure
 - E-business and computer learning
 - Online communications and leisure
- 16,000 Navajo and Hopi homes are not grid-connected
 - Density (customers per mile of electricity distribution line) is low
 - 14.2% with no grid connection vs. 1.4% U.S. national average
- Plentiful local energy resources
 - Nearby natural gas transmission, coal, strong solar, limited wind
 - Connecting resources to more remote areas is the bottleneck
- Navajo Tribal Utility Authority and Navajo government have a strategic roadmap for economic growth with full electrification as one of the major pillars



In Alaska, diesel reliance and rurality are challenges

- Diesel price fluctuations are frequent & shipping costs are high
- Extreme rurality and seasonal variabilities exist
 - Most communities only accessible by boat, ice road, and air
- Coops face difficulty in access to low-cost financing
- Concerns with passing along potentially high costs from rural areas to other customers
- Lengthy timeline and approval process for permitting on Federal land
- Major recession ongoing in the region



Average Alaska Village Electric Cooperative Village Electricity Cost (¢/kWh)	
Fuel	28.58
Power Production	9.97
Administration and General	2.97
Depreciation	2.91
Consumer Accounts	2.39
Distribution	1.19
Interest	1.11
Taxes	0.44
Total	49.56

Barriers to achieving complete access to electricity

- Financial barriers exist
 - Transmission and distribution are the main areas of concern in the Southwest region
 - Generation is the main issue in Alaska
 - Cost of grid buildout seems unrecoverable within a reasonable time frame
- Local challenges are complicated by challenges at the Federal level
 - RUS loans have been undersubscribed (\$3 billion out of \$6 billion)
 - RUS grants have been limited (~\$10 million) vs. grid cost
 - Federal agency collaboration has been limited
- Certain incentives have not been available to tribal governments/utilities in line with other non-tribal energy developers
- Major reliance on single resource (diesel) for many tribal communities in Alaska

Ideas for achieving full electrification

- At DOE:
 - Renew USDA-DOE-BIA Memorandum of Understanding on Electrification
 - Reduce paperwork requirements for DOE-IE grants
 - Build more flexibility into technical assistance funding
 - Unlock DOE-IE grant recipients' ability to take on private third-party capital
 - Host listening sessions to explore creative partnerships between local leadership, the Federal government, and private sector
 - Support funding for the DOE tribal energy loan guarantee program (authorized in 2005)
 - Work with Congress to codify universal electrification
- In partnership with other agencies:
 - Support grants to tribal utilities for energy development and grid buildout
 - Allow RUS to refinance loans to encourage uptake
 - Offer zero percent interest RUS loans for tribes
 - Staff up RUS to review loan applications in a timely manner
 - Review cumbersome and outdated grant/loan “materials list” application requirements
 - Work with NTUA to implement their strategy
 - Expand broadband access for new grid technologies to potentially decrease cost of service