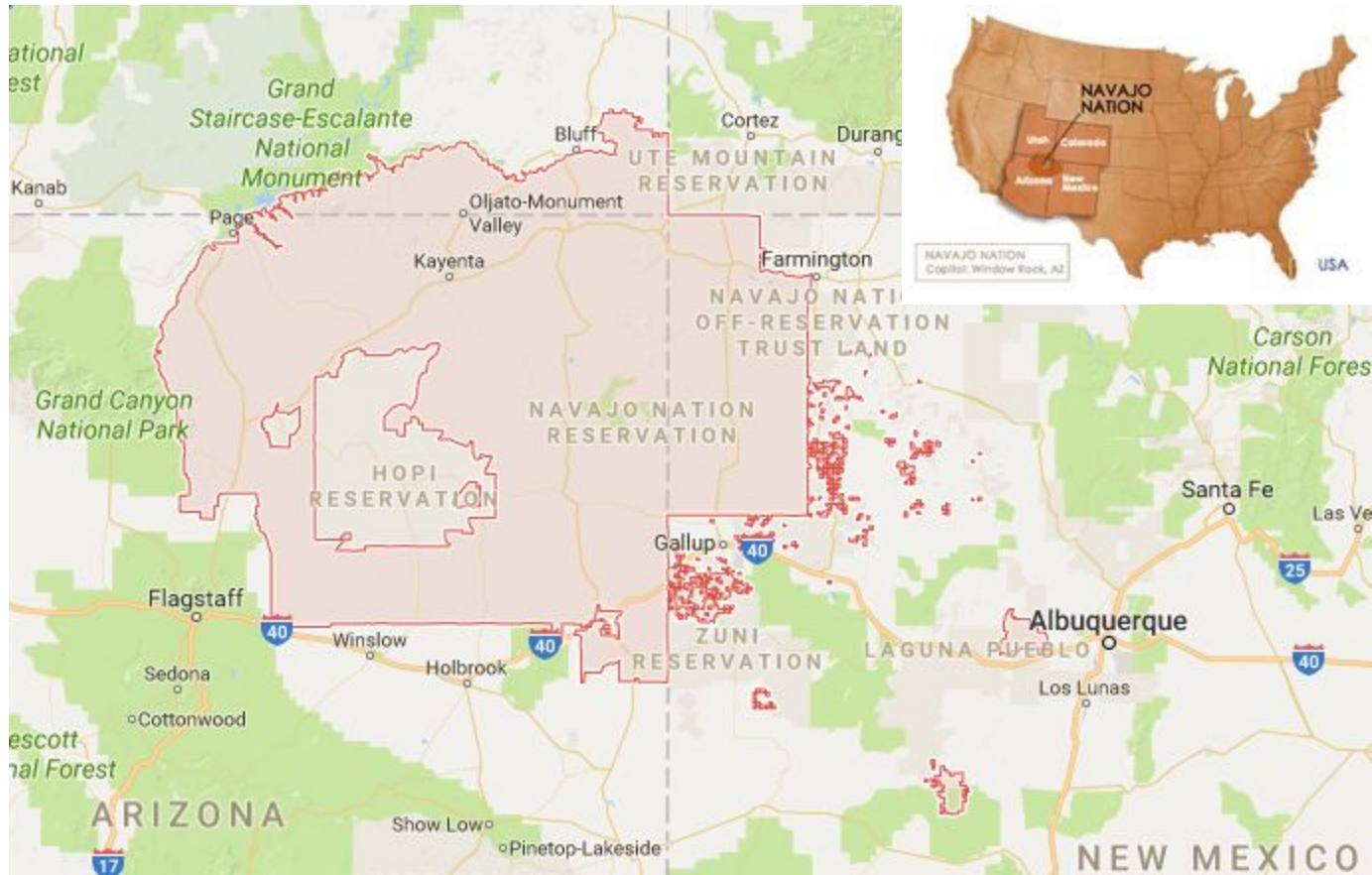


A vertical strip of Navajo-style geometric patterns. The patterns consist of repeating bands of geometric shapes such as triangles, diamonds, and crosses, rendered in teal, orange, and white. The central text is overlaid on this patterned strip.

Electricity for the Navajo





A woman makes a navajo rug by solar powered light.



A mud home, called a hogan, is now able to utilize solar powered light

Energy Eagle



Phase I

Locate Communities and Determine Need

Phase II

Survey Households on General Electricity Use and Distribute Solar Lights

Phase III

Follow Up Trip and Survey on Solar Light Use

Economic Cost

\$40 on kerosene lamps per home per month for lighting

10-25% of their monthly budget

limits opportunities of economic growth



Environmental Cost

7%-9% of the burned kerosene is released as black carbon

9.75 kg of CO₂ released per gallon

270,000 tons of Carbon globally

240,000,000 tons of CO₂ globally



Health Cost

impair lung function, respiratory disease, cancer, eye problems, and infectious disease, including tuberculosis

Fire danger



$(288 \text{ kg kerosene}) \times (7\% \text{ to } 9\% \text{ of kerosene released as black carbon}) = \mathbf{20 \text{ to } 26 \text{ kg of black carbon per household per year}}$

$(96 \text{ gallons kerosene}) \times (9.75 \text{ kg CO}_2 \text{ emitted / gallon of kerosene}) = \mathbf{936 \text{ kg of CO}_2 \text{ emitted per household per year}}$

Kerosene has a mass of about 3 kg per gallon.
The oxygen input during this chemical reaction accounts for the increased mass.

So, $(3\text{kg / gallon}) \times (96 \text{ gallons per year average})$
 $= 288 \text{ kg of kerosene per household per year}$

Inputs from above:

- The average Navajo household uses about 96 gallons (288 kg) of kerosene per year
- 7% - 9% of kerosene is emitted as black carbon when burned
- 9.75 kg of carbon dioxide emitted per gallon of kerosene

CONS

Doesn't solve whole problem

Need electricity for other appliances

Need utility-scale power plant



PROS

Brighter light

Longer “days”

Lower cost

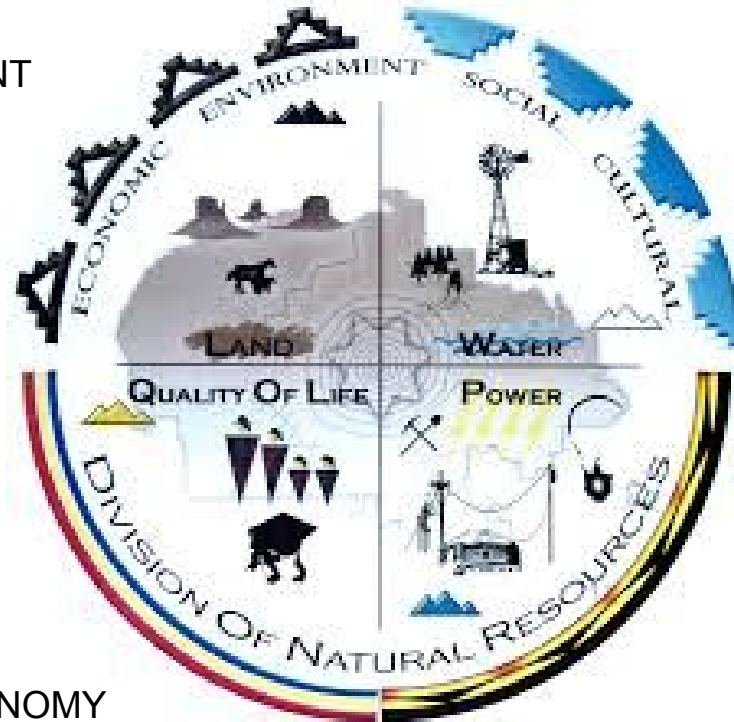
Reduce indoor air pollution

Reduce GHGs



3 E'S OF SUSTAINABILITY

ENVIRONMENT



EQUITY

ECONOMY