



# Delivering Positive Energy

Mike Howard



**HOWARD**  
ENERGY PARTNERS





December 1995

**OIL & GAS JOURNAL**  
International Petroleum News and Technology / www.ogjonline.com

Week of July 23, 2001 / US\$5.00

**PROCESSING**

**Gas Processing**

Duke Energy Field Services (DEFS) is using oxygen ( $O_2$ ) scavenging and ion exchange to battle oxygen contamination at its Wilcox gas plant in Lavaca County, Texas.

Oxygen contamination in the amine system has resulted in degradation of the formulated MDEA (methyl diethanolamine) to bicine and heat stable amine salts (HSAS).

gathering and transportation pipelines. The inlet gas stream contains about 4% carbon dioxide ( $CO_2$ ), 2-3 ppm(vol) hydrogen sulfide ( $H_2S$ ), and 90-100 ppm(vol) of  $O_2$ . The facility consists of inlet gas amine treating, inlet gas dehydration, inlet gas cooling, cryogenic liquids recovery, ethane fractionation, propane fractionation, and residue gas compression.

Residue gas enters a sales gas pipeline at 1,050 psig and a rate of 177.7 MMscfd. The liquid ethane product enters a pipeline at about 5,400 b/d at 1,320 psig. Approximately 2,500 b/d of propane and 6,500 b/d of butane and gasoline product are collected and trucked off site.

The cryogenic feed gas is treated to <50 ppm(vol)  $CO_2$  to meet maximum  $CO_2$  specifications in the recovered ethane product. Circulation rate of the inlet gas treater is 1,100 gpm with a 40 wt % solution of Ineos LLC's Gas/Spec CS-2000 amine.

The residue gas is blended with bypassed inlet gas to meet a pipeline specification of 2%  $CO_2$ . Any remaining inlet gas is treated through an additional 150 gpm side stream absorber that uses the

### Texas gas plant faces ongoing battle

with oxygen contamination

**Plant operation**

The Wilcox gas plant, commissioned by DEFS in spring 1999, was built to replace an existing lean-oil absorption plant that had been in service for 47 years. Capacity of the plant is 200 MMscfd of inlet gas received at 950 psig from four major

Mike Howard  
Duke Energy Field Services  
Bryan, Tex.

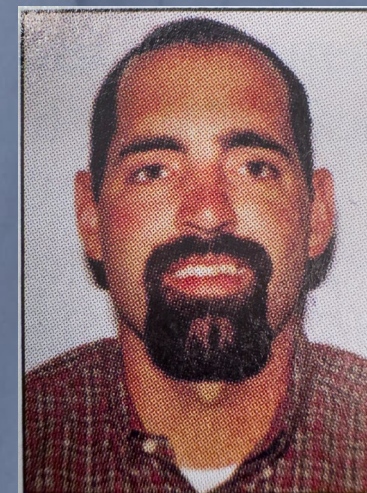
Andy Sargent  
INEOS LLC  
Frisport, Tex.

Presented at the 51st Luvaine Reid Gas Conditioning Conference, University of Oklahoma, Norman, Feb. 25-28, 2001.

High-pressure amine circulation pumps saw the first problems at the Wilcox gas plant.

52

Oil & Gas Journal / July 23, 2001



July 2001





## Mexico

Largest Supplier  
of Natural Gas  
in Monterrey



## Traditional Pipeline

Pennsylvania Pipelines  
West Texas Processing  
South Texas Processing  
Oklahoma Pipelines



## Javelina

Infinium eFuels Plant  
Hydrogen Plant  
Off Gas Processing



## Port Arthur

Renewable Diesel Terminal  
Gasoline Export Terminal

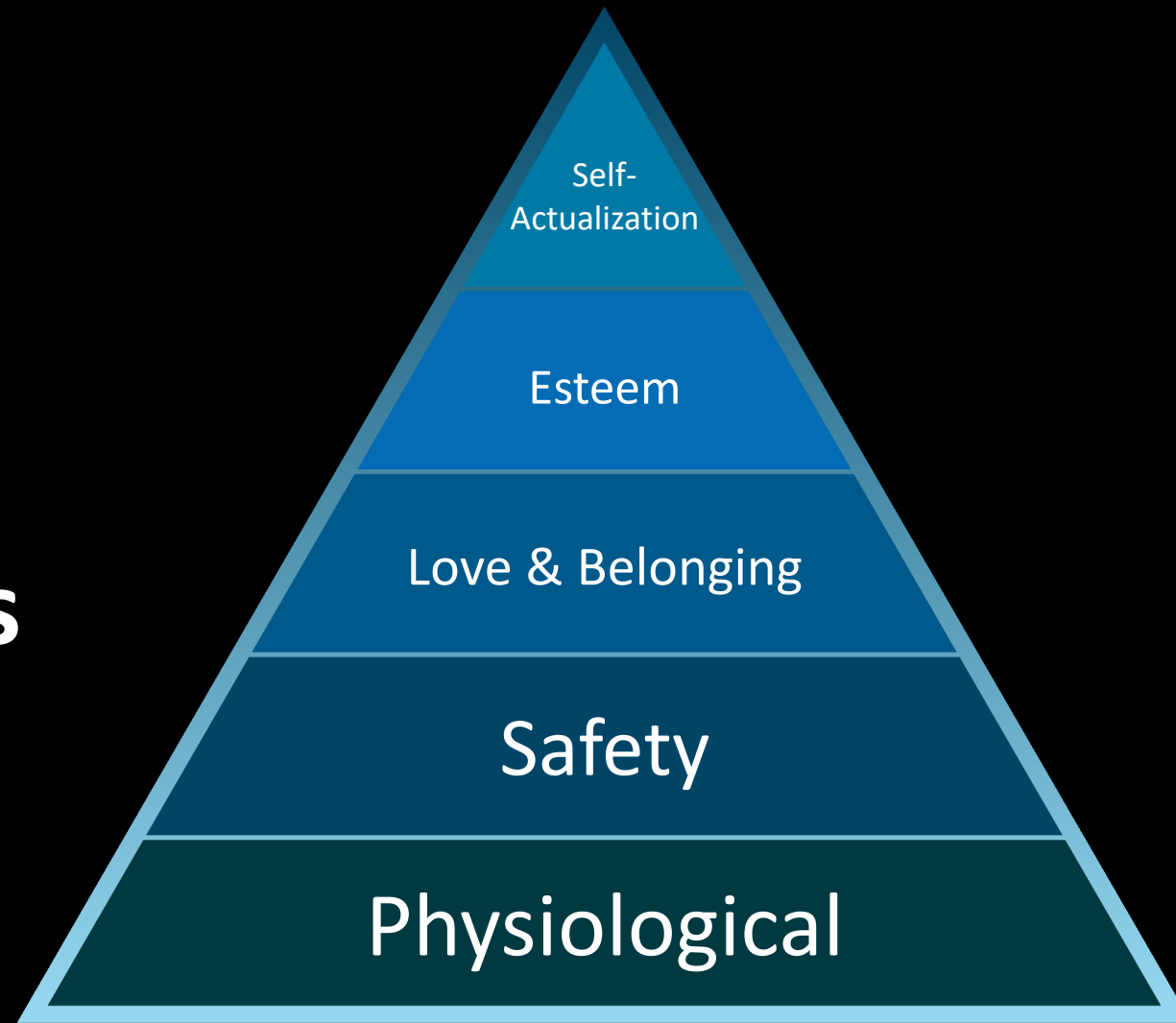


An aerial photograph of a city at night, showing a dense network of lights and roads. The image is overlaid with a semi-transparent blue filter. The text is centered in the upper half of the image.

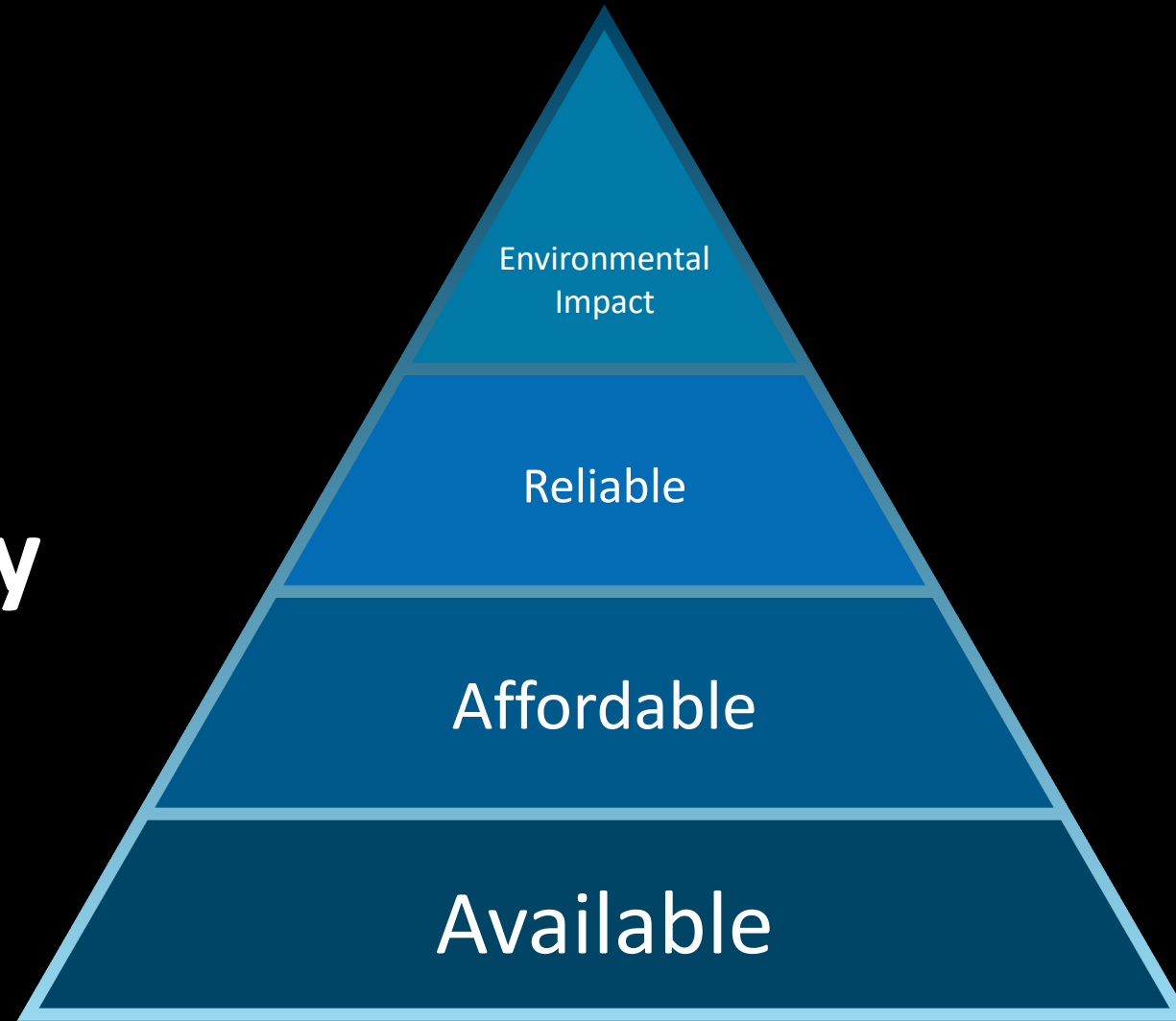
Pro Energy      Pro Climate      Anti Poverty

Delivering Positive Energy

# Maslow's Hierarchy of Human Needs



# Murti's Hierarchy of Human **Energy** **Needs**



Haiti



Dominican  
Republic

Haiti



Dominican  
Republic



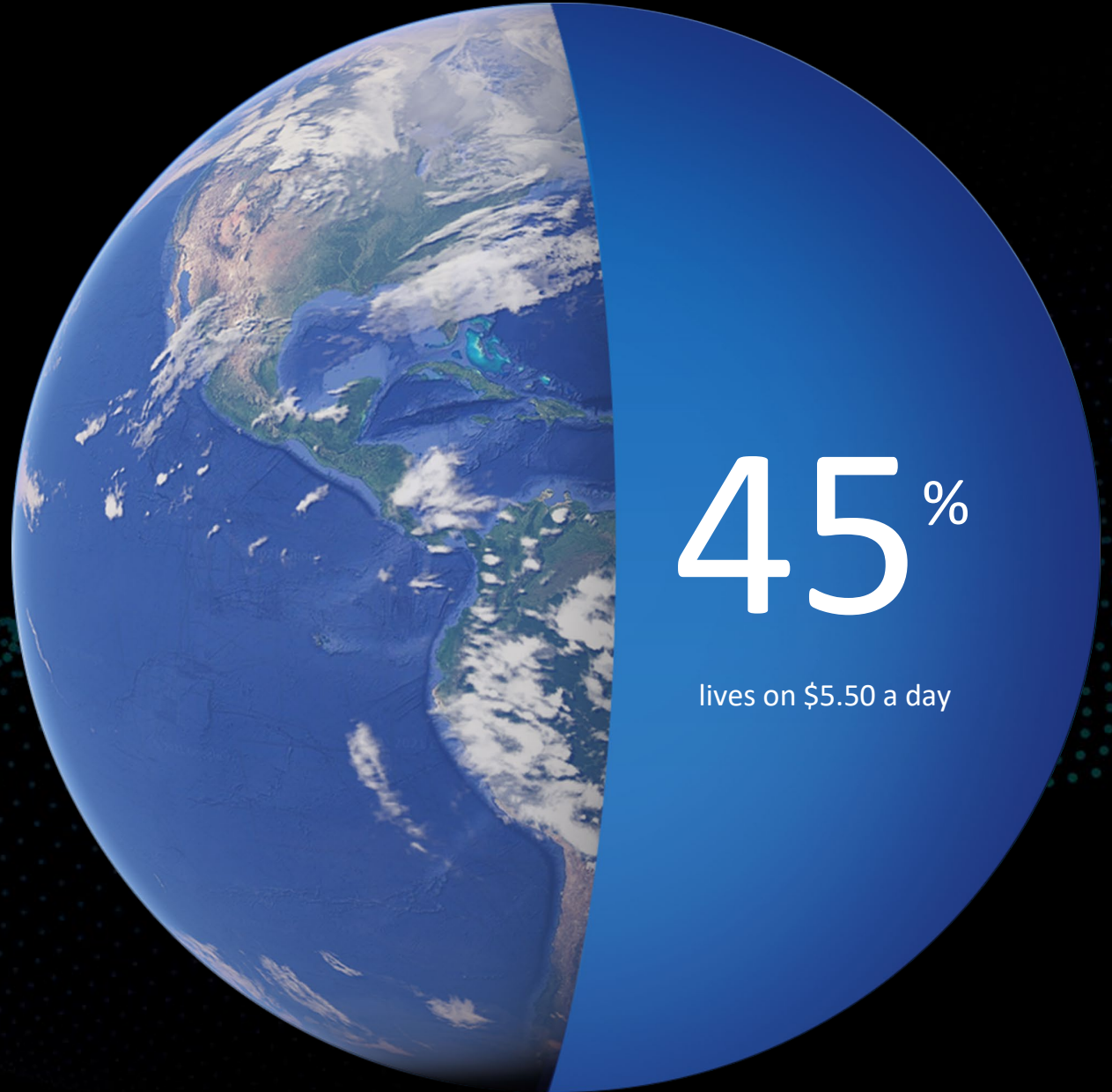
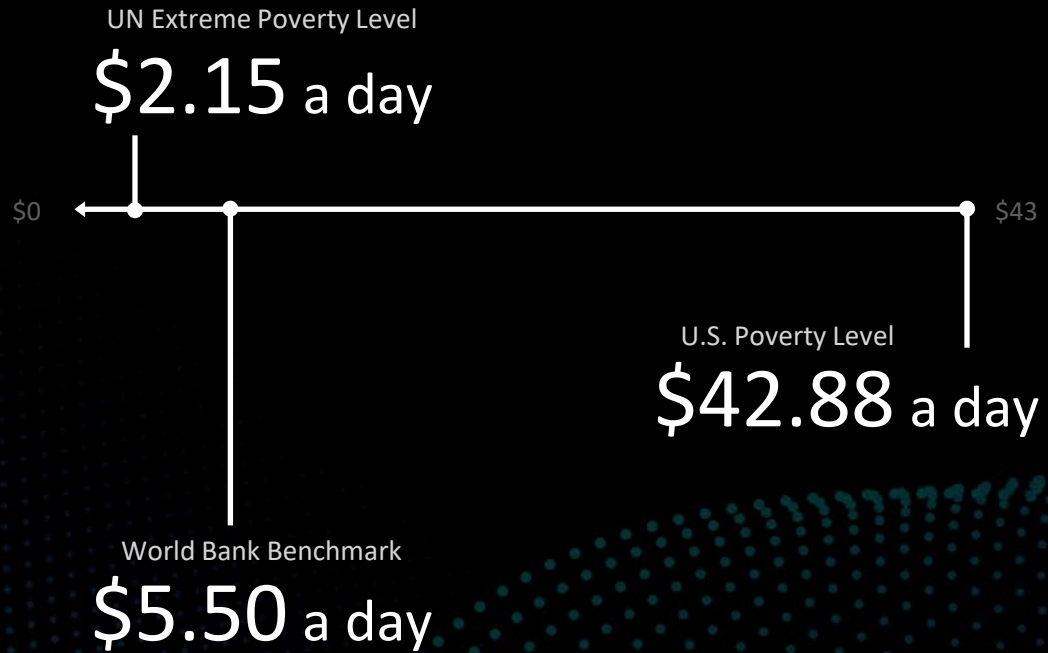


# Global Poverty

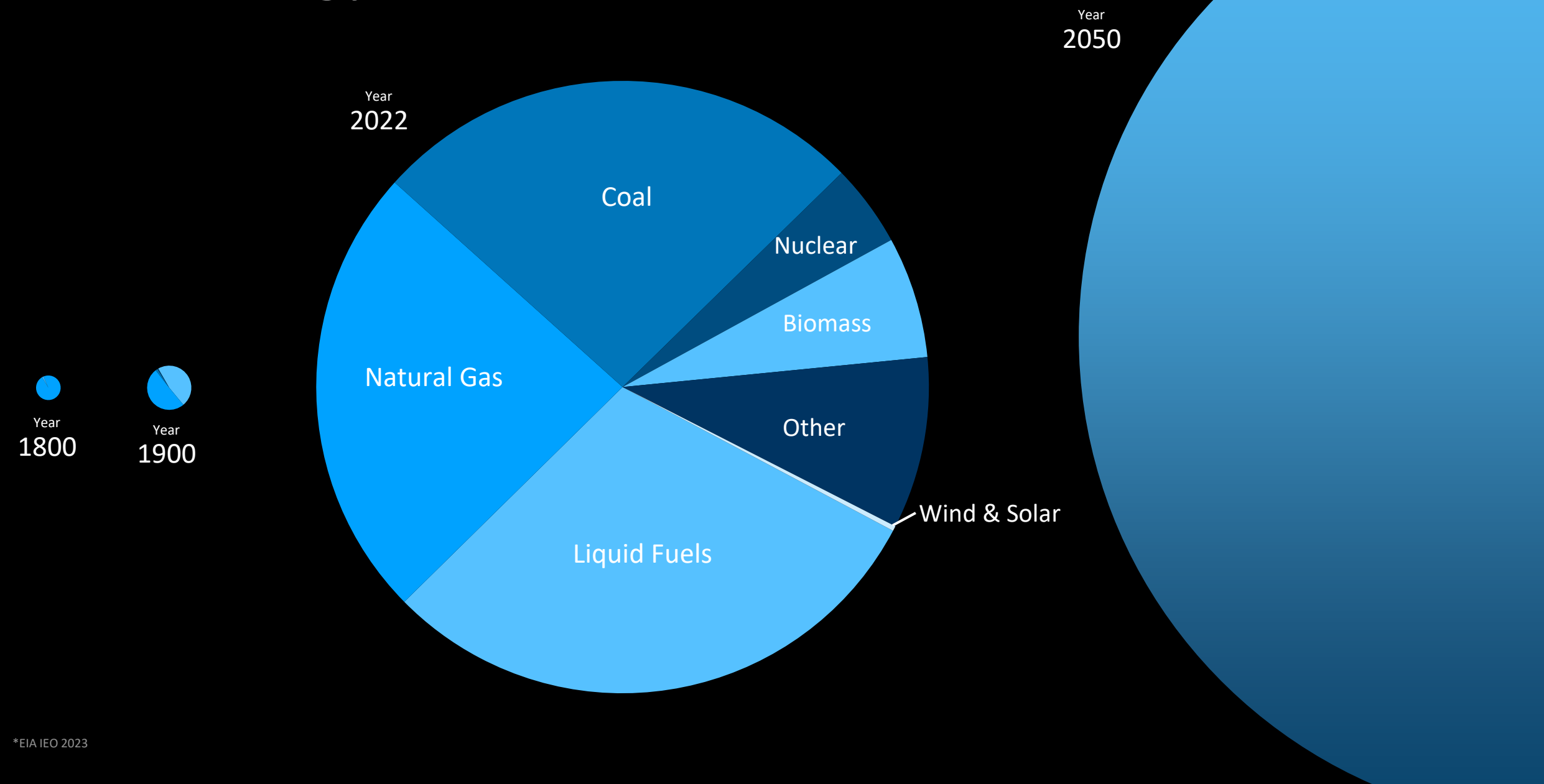




# Global Poverty

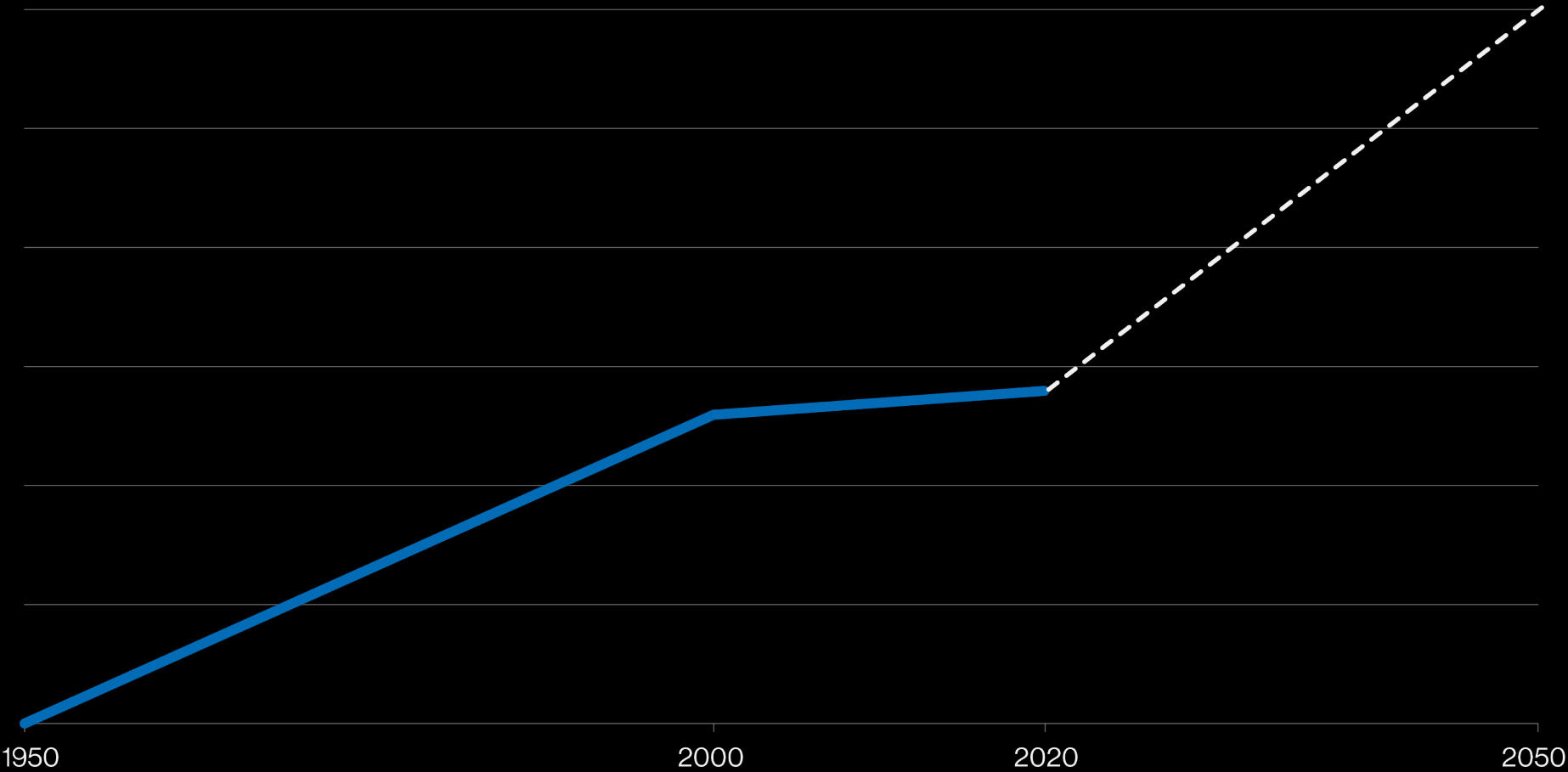


# Global Energy Use





# U.S. Electricity Demand Surges through 2050



**55%**  
**Natural Gas**  
**and Coal**

\* NEMA Study "A Reliable Grid for an Electric Future," January 2025

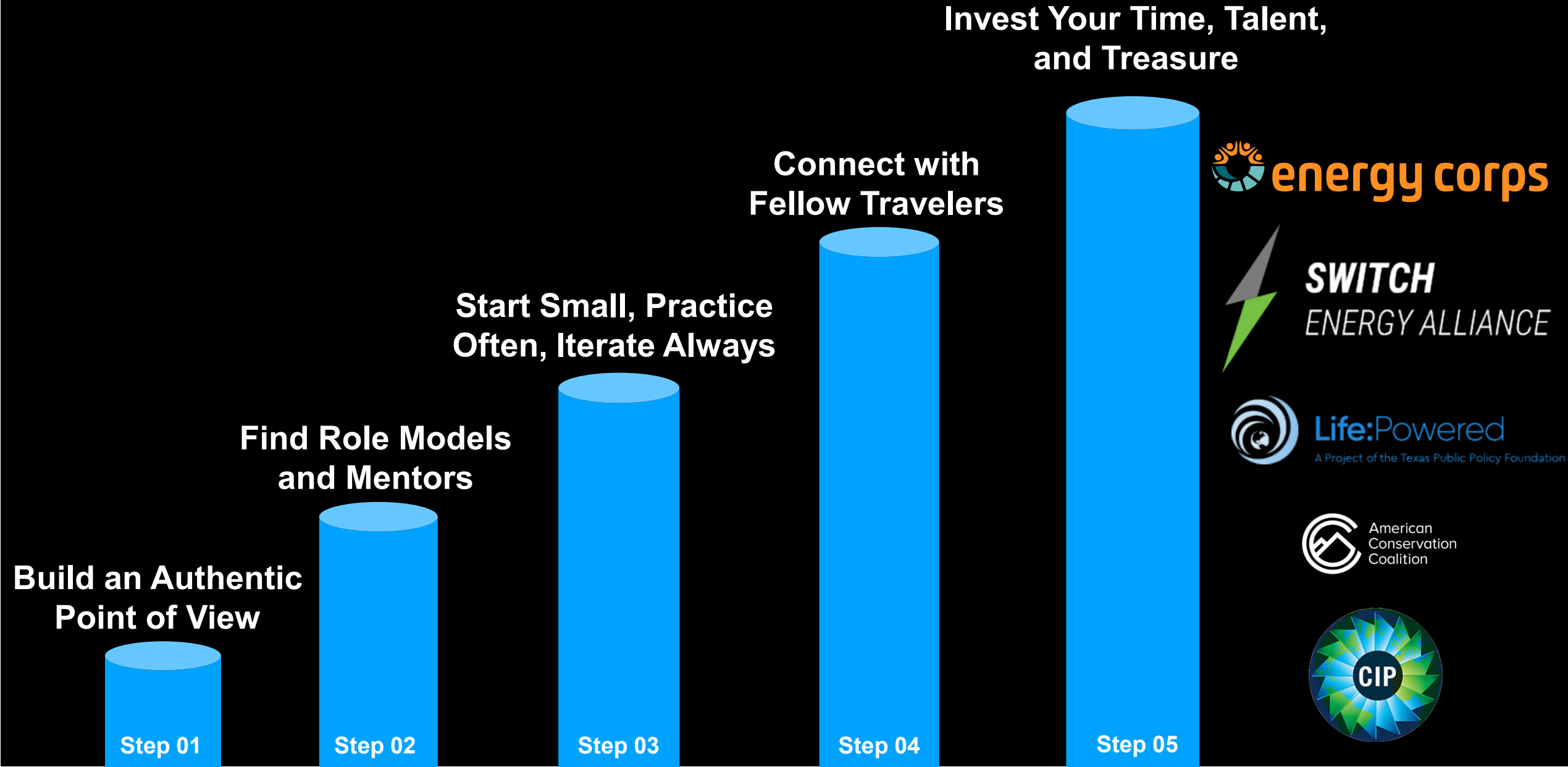


AFFORDABLE, RELIABLE, ABUNDANT ENERGY





# 5 Steps of Energy Advocacy



Business is a **force for good**.

**Energy** is the business that **powers every other business**.

Energy **Enables Prosperity**.

The **World** needs more **Energy**. And **Education**.

Every human is an **Energy Advocate**.







**HOWARD**  
ENERGY PARTNERS