

A photograph of a wind farm in a field of sunflowers under a cloudy sky. The sunflowers are in the foreground, and the wind turbines are in the background. The sky is overcast and grey.

**MEAN**  
**Sandhills Energy**  
**NGC Group**

**Kimball Wind**  
**Decommissioning**  
**&**  
**Redevelopment**

# Kimball Wind Farm Replacement

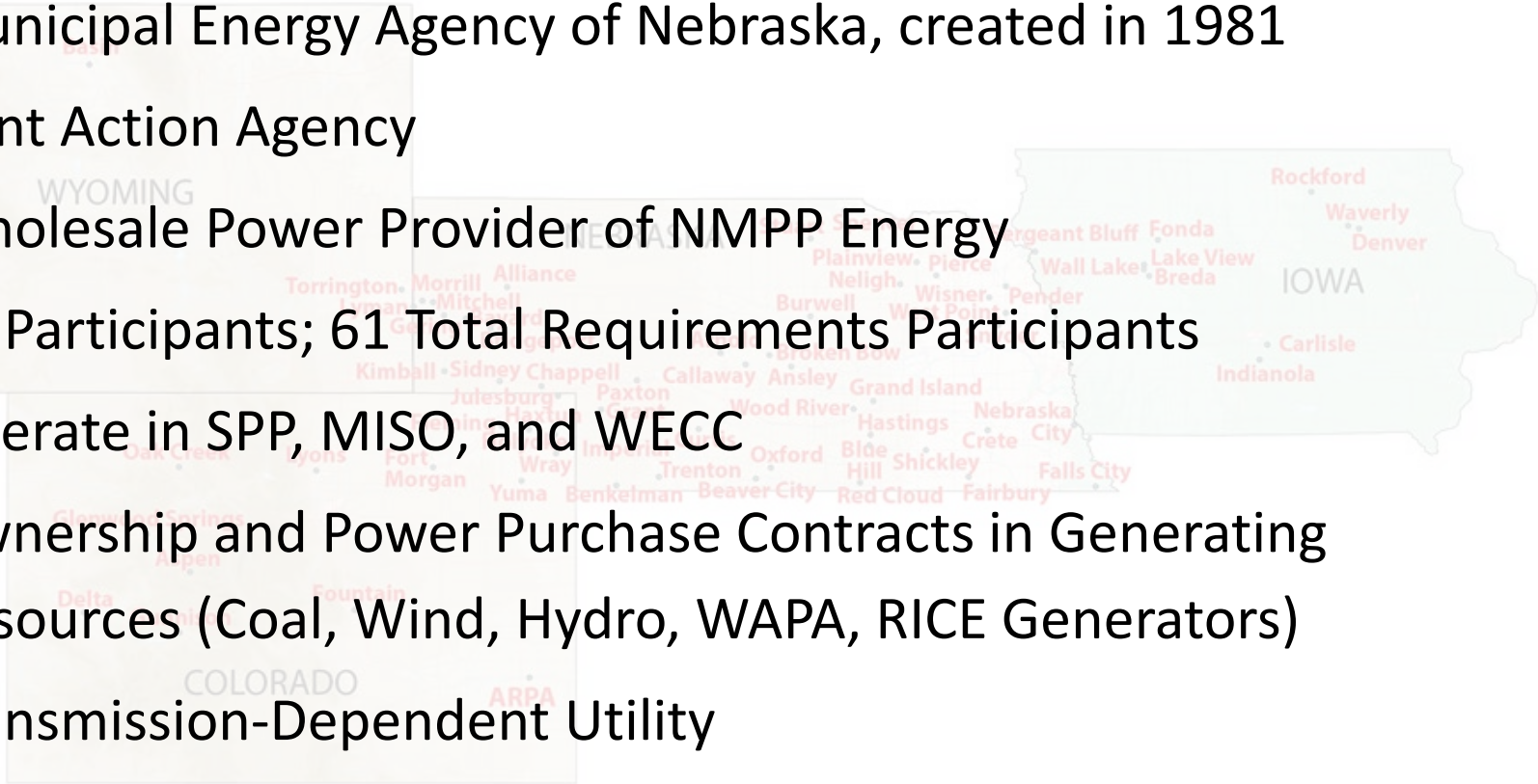
Shannon Coleman, PE  
Supervisor of Resource Planning and Analysis



NMPP | MEAN | NPGA | ACE

# About MEAN

- Municipal Energy Agency of Nebraska, created in 1981
- Joint Action Agency
- Wholesale Power Provider of NMPP Energy
- 69 Participants; 61 Total Requirements Participants
- Operate in SPP, MISO, and WECC
- Ownership and Power Purchase Contracts in Generating Resources (Coal, Wind, Hydro, WAPA, RICE Generators)
- Transmission-Dependent Utility



# Original Kimball Wind Farm Construction

- First “wind farm” built in Nebraska
- 3 miles NW of Kimball, NE
- Owned and Operated by MEAN  
(Operating and Maintenance contract with Vestas)
- Commercial Operation Date = October 2002
- Seven (7) 1.5 MW Vestas Turbines
- One Landowner
- Interconnect to Kimball substation, city-owned line to WAPA substation

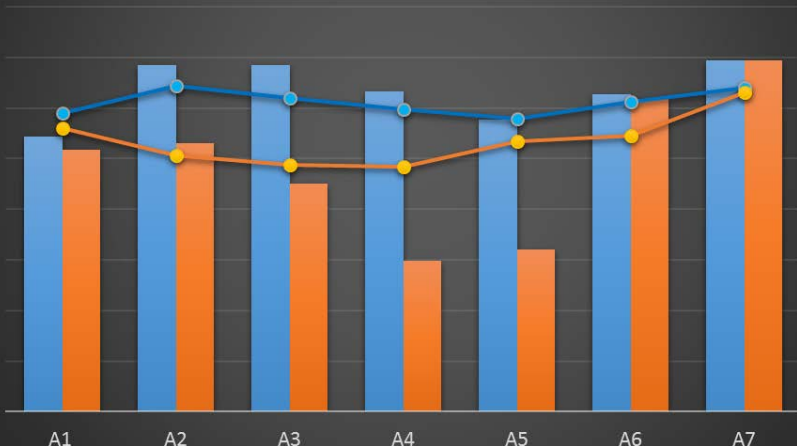
★ Designed by Town-MapsUSA.com



# Kimball Wind Farm Operation

Capacity Factor and Equipment Availability

■ Capacity Factor 2011-2014     ■ Capacity Factor 2015-2016  
● Equipment Availability 2011-2014     ● Equipment Availability 2015-2016

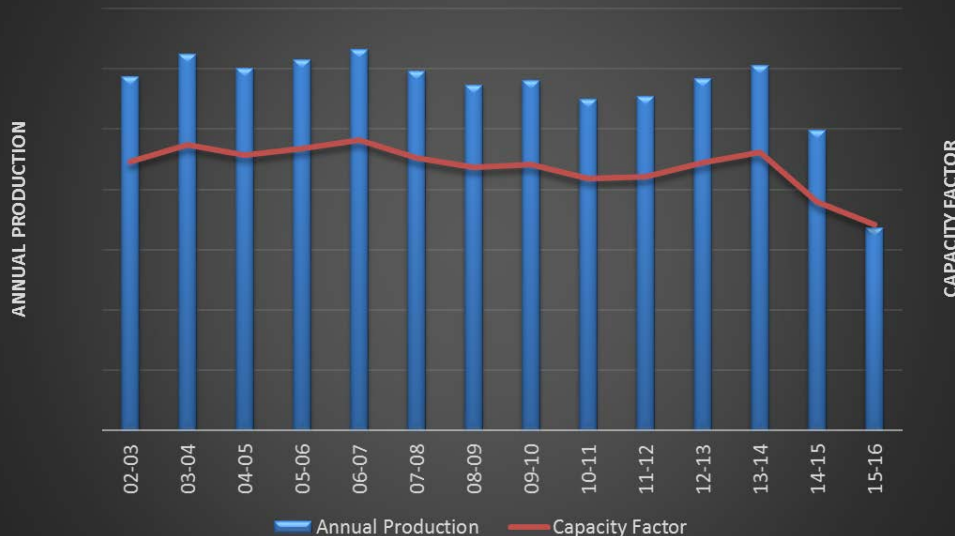


- Major Repairs
  - 17 Generator Replacements
  - 4 Gearbox Replacements

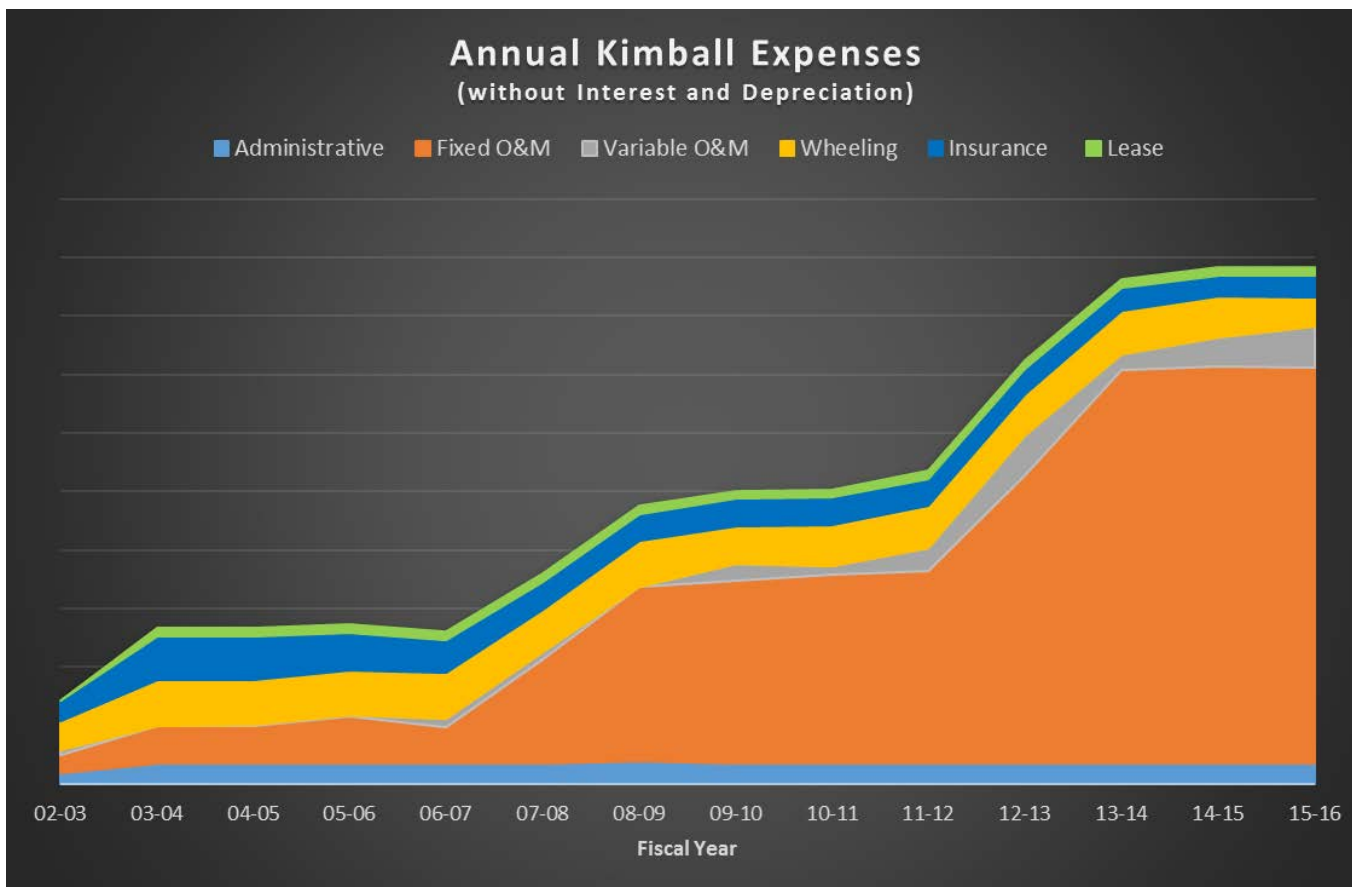
- Latest Failures

- A3 - August 2016
- A4 - January 2016
- A5 - December 2015

Kimball Wind Farm Performance



# Kimball Wind Farm Costs



- Increase in Variable O&M
- Increase in Fixed O&M

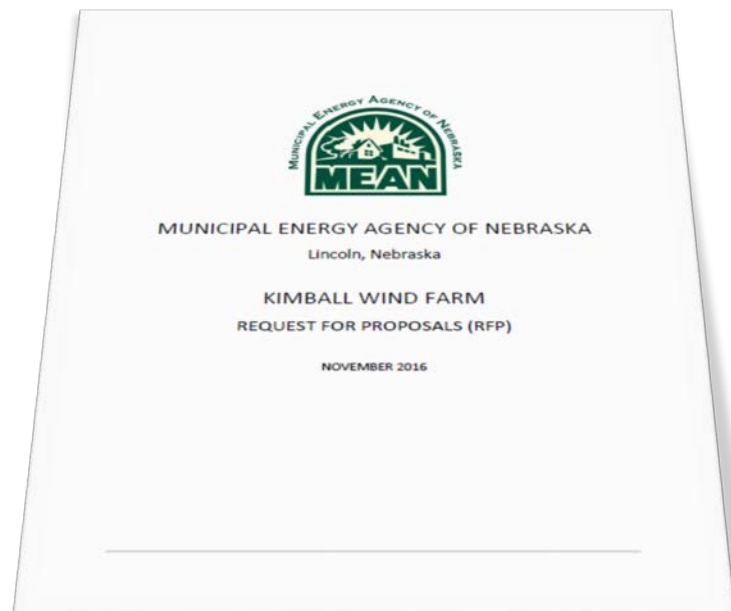
# MEAN's Legal Limitations

- No PTCs for Public Power
- Nebraska Power Review Board Opinion
  - ▶ MEAN cannot directly sell operating generation assets to a private for-profit entity operating in the electric industry



# Request for Proposals

- 20-Year Power Purchase Agreement
- Renewable Energy + Environmental Attributes
- Minimum 20 MW
  - ▶ First Right of Refusal for Additional
- Preference for Kimball Location
  - ▶ Minimum of 10.5 MW
  - ▶ Any Location for Additional
- Repower Considered
- Decommissioning Included
- Transmission Options (Reuse or Build New)
  - ▶ Bidder Responsible for Transmission Upgrades





# Proposal Selection

- Received 4 Proposals
  - ▶ Wind and Solar
  - ▶ NE and CO
- Evaluation
  - ▶ Location
  - ▶ Life Cycle Cost
- Participant Goals
  - ▶ Renewable Energy
  - ▶ Local Benefit
  - ▶ Low Cost

CUMULATIVE COST OF WEST RESOURCES + MARKET

