

MPUC Planning Meeting May 14, 2015

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OUR MISSION

MRES is dedicated to supplying its members with reliable, cost-effective, long-term energy and energy services in a fiscally responsible and environmentally sensitive manner. MRES is an extension of its members, and through joint action, members will remain competitive while enhancing their relationships with their customers.

Agenda

1. Missouri River Energy Services (MRES) and Western Minnesota Municipal Power Agency (Western Minnesota)
2. Resource Planning
3. Red Rock Hydroelectric Project



OWNED BY
61
MUNICIPAL
ELECTRIC UTILITIES

MEMBERS



APPROXIMATELY
155,000
CUSTOMERS

Missouri River Energy Services

- Not-for-profit, municipal power agency, governed by 13-member board of directors elected from municipal utility membership
- Wholesale power and energy, and energy services to 61 municipal electric utilities in Iowa, Minnesota, North Dakota & South Dakota
- Formed in 1965 under Iowa law as municipal utilities outgrew their federal hydroelectric allocations
- Average MRES member: < 5,000 population
Smallest: Pickstown, SD – 215
Largest: Moorhead, MN – 39,398
- MRES indirectly serves the needs of **80,327 retail customers in Minnesota**



Missouri River Energy Services

Members

North Dakota

Cavalier
Hillsboro
Lakota
Northwood
Riverdale
Valley City

South Dakota

Beresford
Big Stone City
Brookings
Burke
Faith
Flandreau
Fort Pierre
Pickstown
Pierre
Vermillion
Watertown
Winner

Minnesota

Adrian
Alexandria
Barnesville
Benson
Breckenridge
Detroit Lakes
Elbow Lake
Henning
Hutchinson
Jackson
Lakefield
Lake Park
Luverne
Madison
Marshall
Melrose
Moorhead
Ortonville
St. James
Sauk Centre
Staples
Wadena
Westbrook
Worthington

Iowa

Atlantic
Alton
Denison
Fontanelle
Hartley
Hawarden
Kimballton
Lake Park
Manilla
Orange City
Paullina
Pella
Primghar
Remsen
Rock Rapids
Sanborn
Shelby
Sioux Center
Woodbine



Western Minnesota Municipal Power Agency

- Not-for-profit, Minn. Stat. Ch. 453 municipal power agency, governed by 7-member board of directors elected from membership
- Finances and owns the generation and transmission facilities to serve MRES members
 - *Western Minn generating capacity approximately 490,000 kW*
- Strong financial performance
 - Fitch: AA- with stable outlook
 - Moody's: Aa3 with stable outlook
- All Minnesota members of MRES, except Hutchinson, are members of WMMPA

Western Minnesota Members

*Adrian
Alexandria
Barnesville
Benson
Breckenridge
Detroit Lakes
Elbow Lake
Henning
Jackson
Lakefield
Lake Park
Luverne*



*Madison
Marshall
Melrose
Moorhead
Ortonville
St. James
Sauk Centre
Staples
Wadena
Westbrook
Worthington*

Current Regulatory Issues

- EPA Clean Power Plan
- FERC SPP, MISO issues
- Standby service
- Combined Heat and Power (CHP)
- Distributed generation
- 2016 Integrated Resource Plan (IRP)
 - Minn. Stat. §216B.2422
 - Advisory in nature

2017-2031 Resource Planning

MRES GENERATION FACILITIES

MRES has filed 5 IRPs

- 1995-2015
- 1998-2013
- 2001-2016
- 2006-2020
- 2011-2025

- Next due July 1, 2016



WAPA Federal
Hydroelectric
Resources



Proposed MRES
Hydroelectric
Resource



Nuclear
Resource



Natural Gas
Resource



Wind Energy
Resources



Coal
Resource

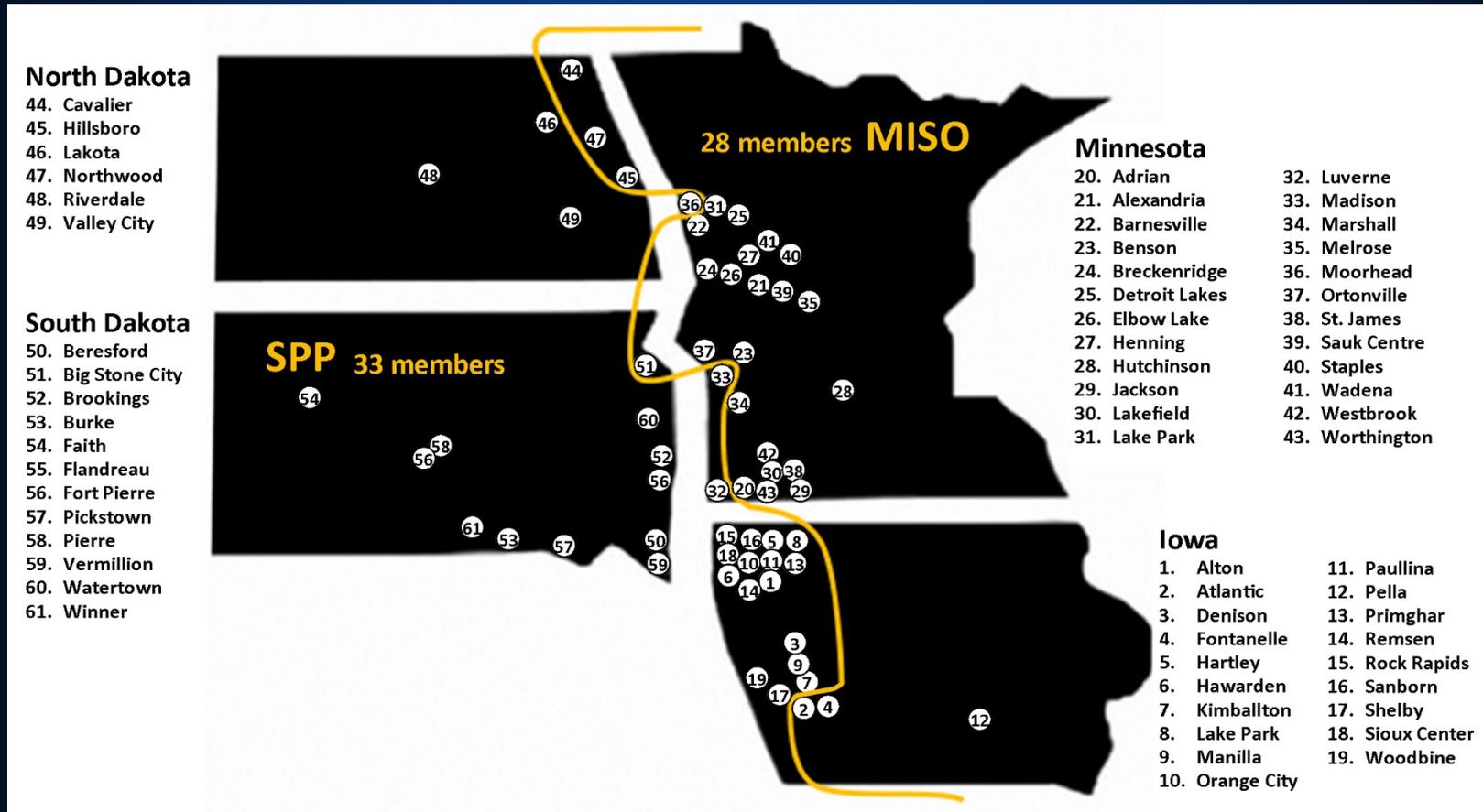


Diesel
Resource

IRP Objectives

- Key business planning tool
- Conduct statutory analysis, scenarios using Strategist[®]
 - Ensure adequacy, reliability
 - Minimize rates, socioeconomic, and environmental impacts
 - Balance demand-side & supply side, MN renewable mandate, and ND & SD goals
- Meet emerging federal and state regulations
- Manage risks
- Incorporate changes since 2011-2025 IRP
 - Wholesale market changes
 - Expansion of demand-side Bright Energy Solutions[®] programs
 - Point Beach Nuclear Plant PPA
 - Red Rock Hydroelectric Project

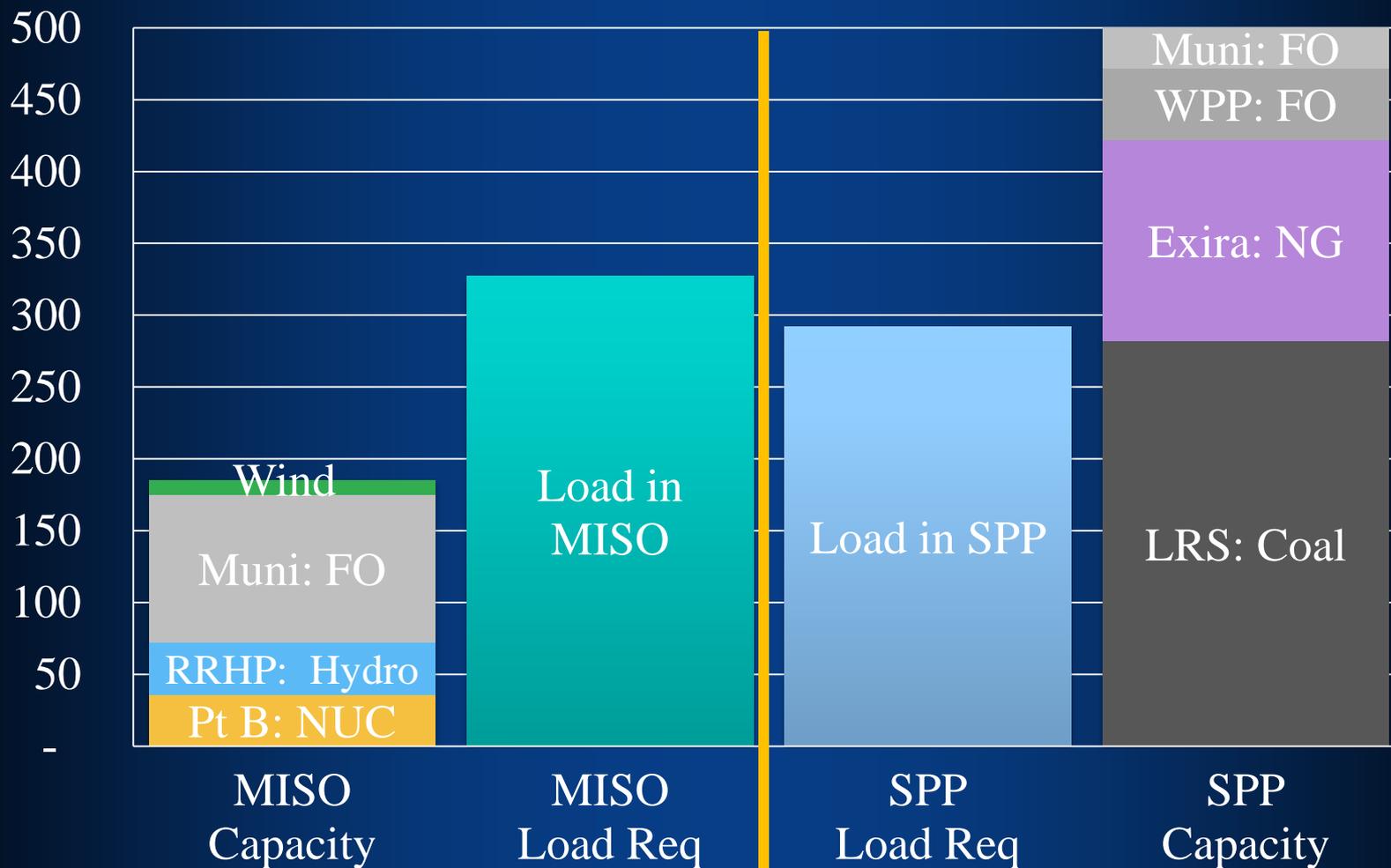
MRES Member Locations



West Side: WAPA Region,
In SPP Starting Oct 2015

East Side: MISO Region

MRES 2020 Supply (MW)



Load is half in MISO, half in SPP
MISO resources are less than load

No Longer Importing Capacity into MISO due to WAPA changes

- Imports Require Firm Transmission Reservation
 - Expensive
 - If Available
- WAPA considered MISO, SPP, or no change
 - Difficult to market surpluses & purchase during outages
 - Transmission requires multi-state participants
- WAPA chose SPP, canceled existing transmission reservations
- Imports into MISO only for
 - WAPA power (at WAUE node/interface of SPP/MISO)
 - LRS service only to Cavalier and Northwood, ND
- SPP transmission service cost prohibitive

Energy supply in MISO

- Loads: MRES must purchase at the local nodal price(s) for members' loads
- Resources: Paid at their generation point
- Imports (where possible): Paid at border

- Cost (load point) vs Credit (generation point):
 - Losses and Congestion costs
 - Financial tools to manage cost differences: FTR, GFA
- Load & Production - don't need to balance
 - Exposure to market prices
 - Financial products to mitigate exposure

MRES: One Membership – Two Resource Planning Models

- All MRES S-1 Members pay same rate regardless of where resources are located
- Members in different RTOs and inability to import from SPP to MISO requires separate modeling
 - MISO Capacity Resources
 - No MRES-owned base load coal in MISO, little fossil fuel
 - Need capacity to avoid capacity auction risk
 - MISO Energy Resources
 - Wind, Hydro, Nuclear covers about half of the load
 - On-peak market purchases to avoid energy market risks
 - SPP Capacity & Energy Resources
 - Surplus of both capacity and energy – need to market
 - MRES-owned coal, natural gas, and fuel oil resources

Resource Planning Impacts

- Some Aspects Not Affected:
 - Load Forecasts – done for each member
 - Goals for DSM and Renewables
- Separate MISO and SPP Models
 - Separate market price forecasts
 - No ability to shift capacity or loads between markets
 - Different resource situations
- MPUC Interest in SPP models?
 - Most MN load is not in SPP (only 3 of 24 MN members)
 - MN load has small impact on total SPP needs

Planning Conclusions

- WAPA decision puts MRES in two markets
 - Divides MRES power supply options & MRES loads/Members
 - Requires separate modeling
- MRES resources, needs modeled by RTO
 - MISO: capacity short
 - SPP: capacity long
- SPP supply has limited impact on MN resources, load
- Evaluate potential carbon regulation variables
 - Location of resources, load
 - Final EPA Clean Power Plan rules, state plans

RED ROCK

HYDROELECTRIC PROJECT



LOCATION

Des Moines River, about 2.5 miles southwest of Pella, Iowa



SIZE OF DAM

Length is 6,260 feet; height is 110 feet



ENERGY PRODUCTION

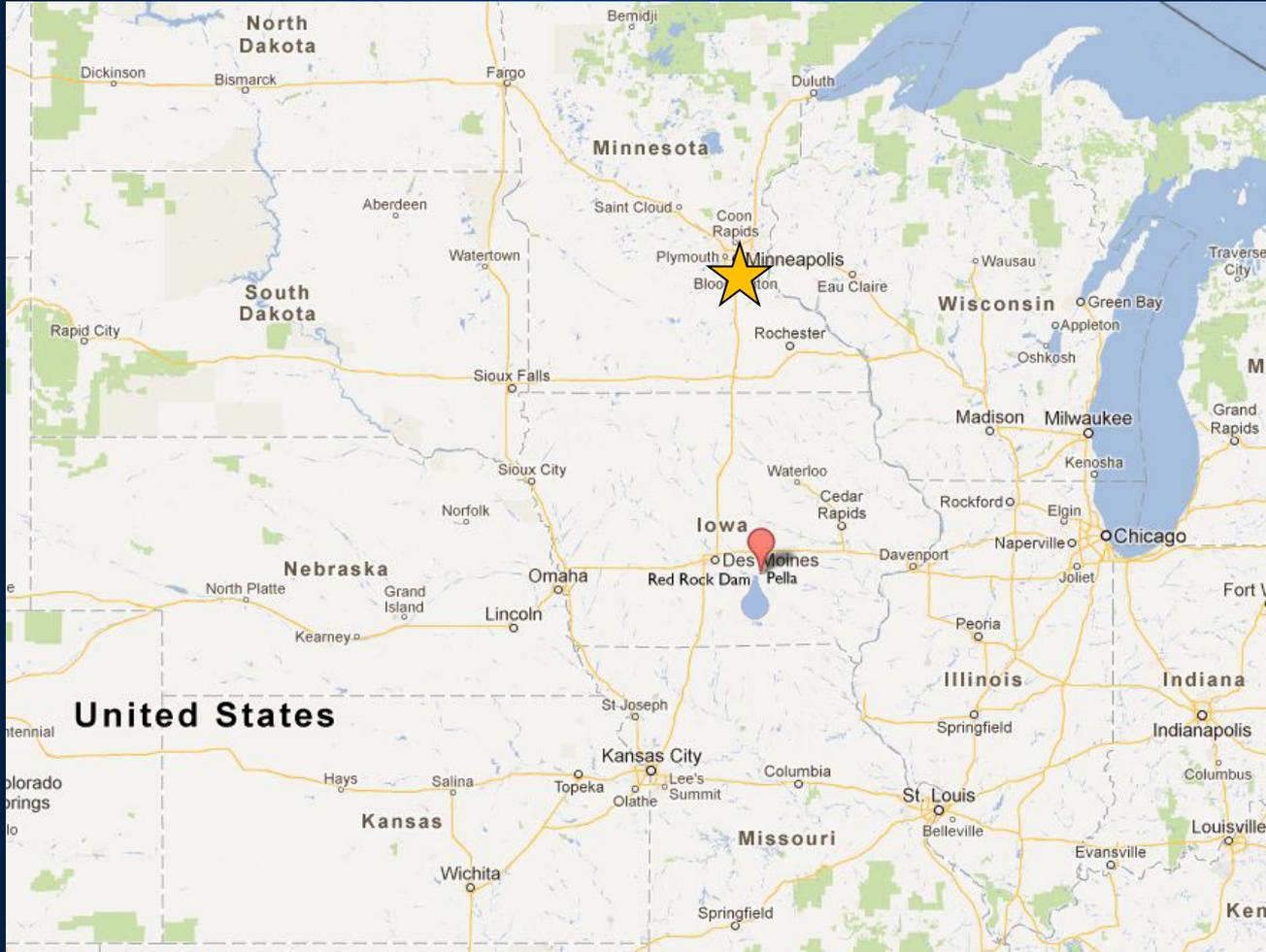
178,000 megawatt-hours (estimated annual average)



ENERGY SOURCES

40% of our members' energy comes from wind & federal hydroelectricity

Red Rock Hydroelectric Project (RRHP)



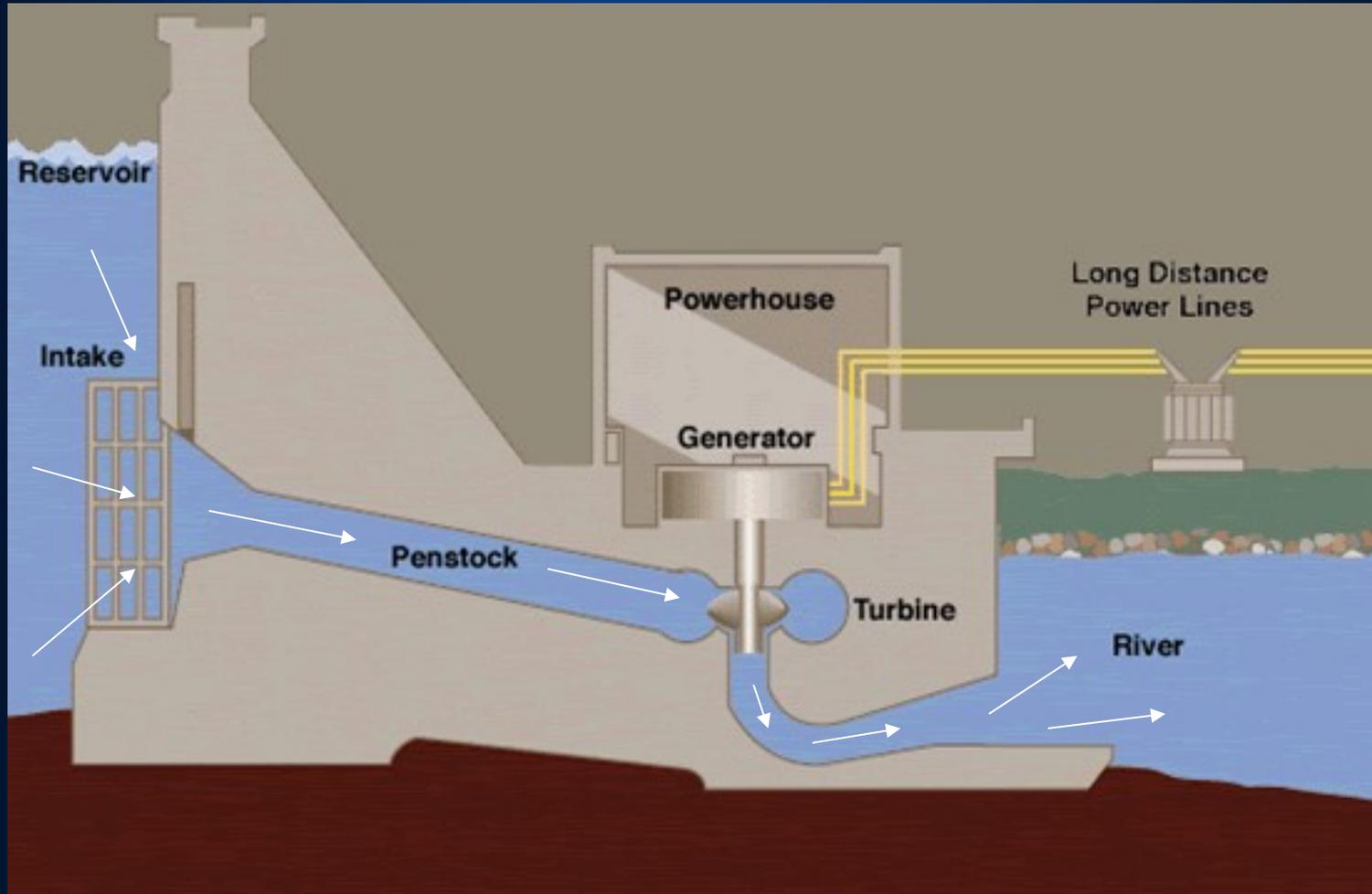
Lake Red Rock & Red Rock Dam

- Corps of Engineers flood control dam
 - Earth-filled embankment with concrete gravity section
- Built on the Des Moines River
 - Begins at Lake Shetek in MN, flows to Mississippi
 - Constructed from 1960-1969
- Reservoir storage – largest lake in Iowa
 - Normal Pool (El. 742 ft): 189,020 acre-feet
 - Flood Control Pool (El. 780 ft): 1,436,000 acre-feet

RRHP Details

- FERC License acquired 2010
 - 36.4 MW rated capacity
 - 55 MW capacity at peak flows
- Average Annual Capacity Factor > 55%
- 178,000 MWh annual average output
- Releases based on Corps flood control
- Interconnection with Pella, IA
 - 69 kV Transmission Line
- Construction August 2014 - 2018

General Hydroelectric Plant Overview



Benefits of RRHP

- Clean, renewable resource, no emissions
- Meet MN RES mandate, possible Clean Power Plan state plan requirements
- Minimal impact on environment & fisheries
- Base load resource in MISO
- Known capital costs, minimal operational costs (e.g. fuel costs, potential emission taxes, and staffing)
- Long-term operational investment

OUR CORE VALUES

MRES is an organization where excellence of work and integrity of character are daily expectations for all employees, Board members, and others associated with MRES on a professional basis. The following Core Values describe those expectations in greater detail:

Reliability. We are there when you need us.

Accountability. We can be counted on to do what we say we will.

Honesty. We will give our members the whole story—bad news along with the good.

Competence. Excellence in work product and performance will be the objective of every MRES employee with the end result being the achievement of the MRES corporate goals consistent with member expectations.

Creativity. We will recognize problems that limit the success of our members and strive to solve them.

Creative solutions are encouraged and failure will be viewed as a temporary setback to be learned from for future problem-solving efforts.



*Thank you
for your time and
attention.*

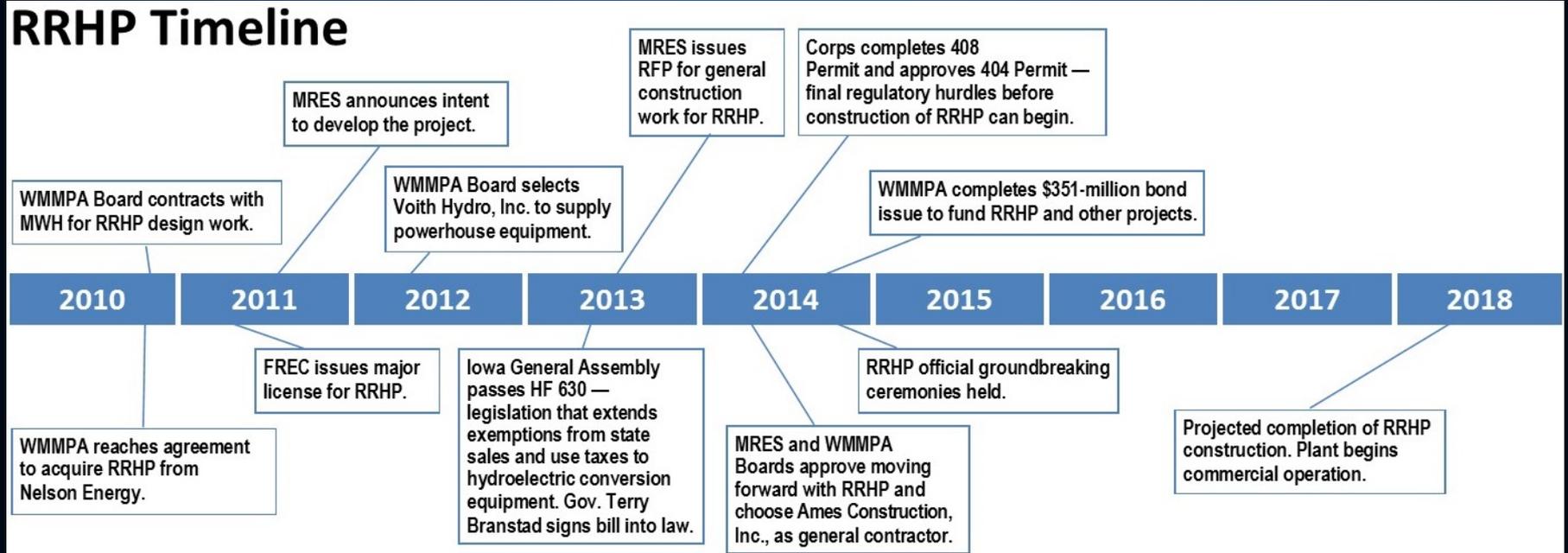
Questions?

<http://www.mrenergy.com>
<http://redrockhydroproject.com>





RRHP Timeline



<http://www.mrenergy.com>
<http://redrockhydroproject.com>

Project Features Upstream

*Existing Dam
Crest / Hwy T-15*

*Buried
Penstocks*

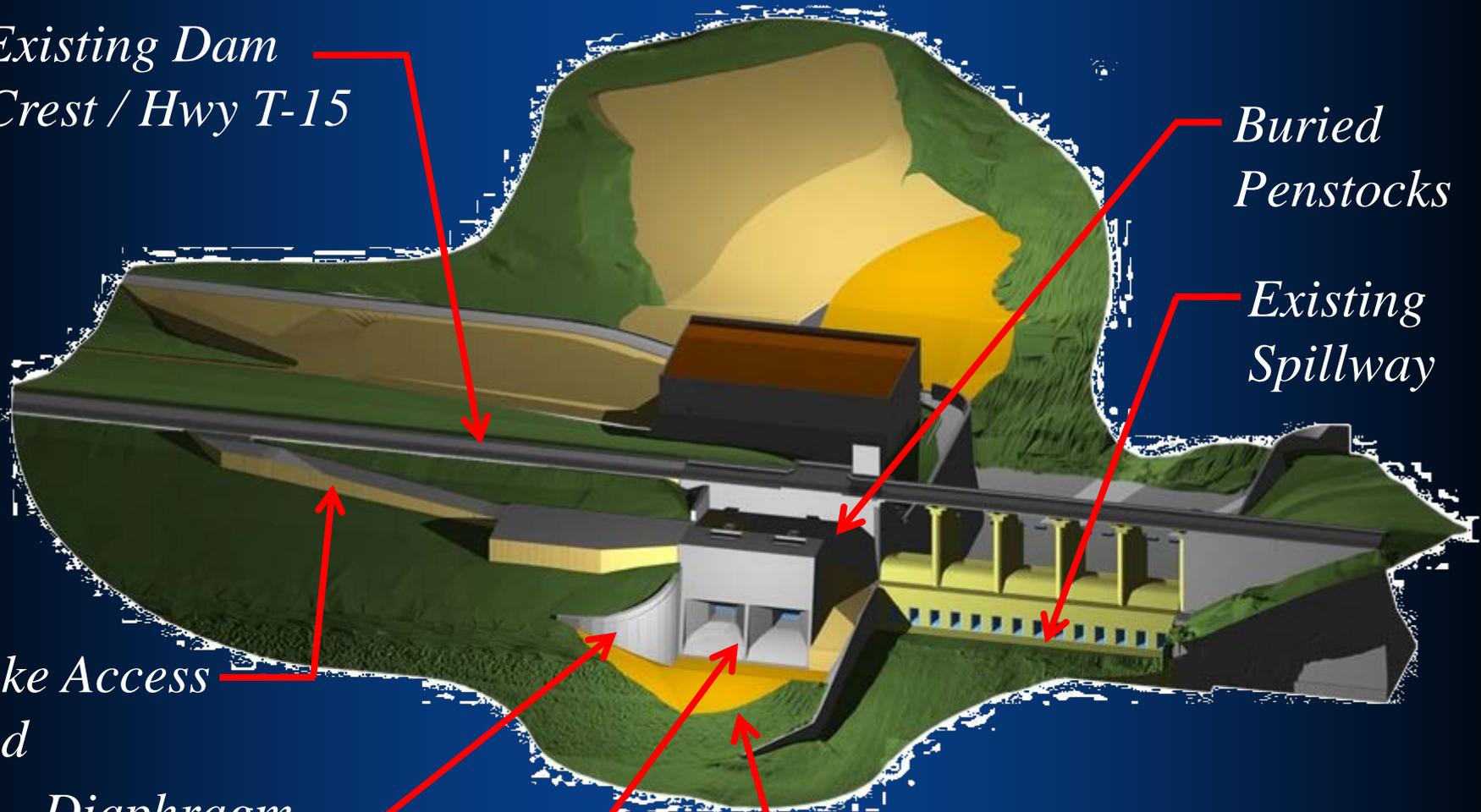
*Existing
Spillway*

*Intake Access
Road*

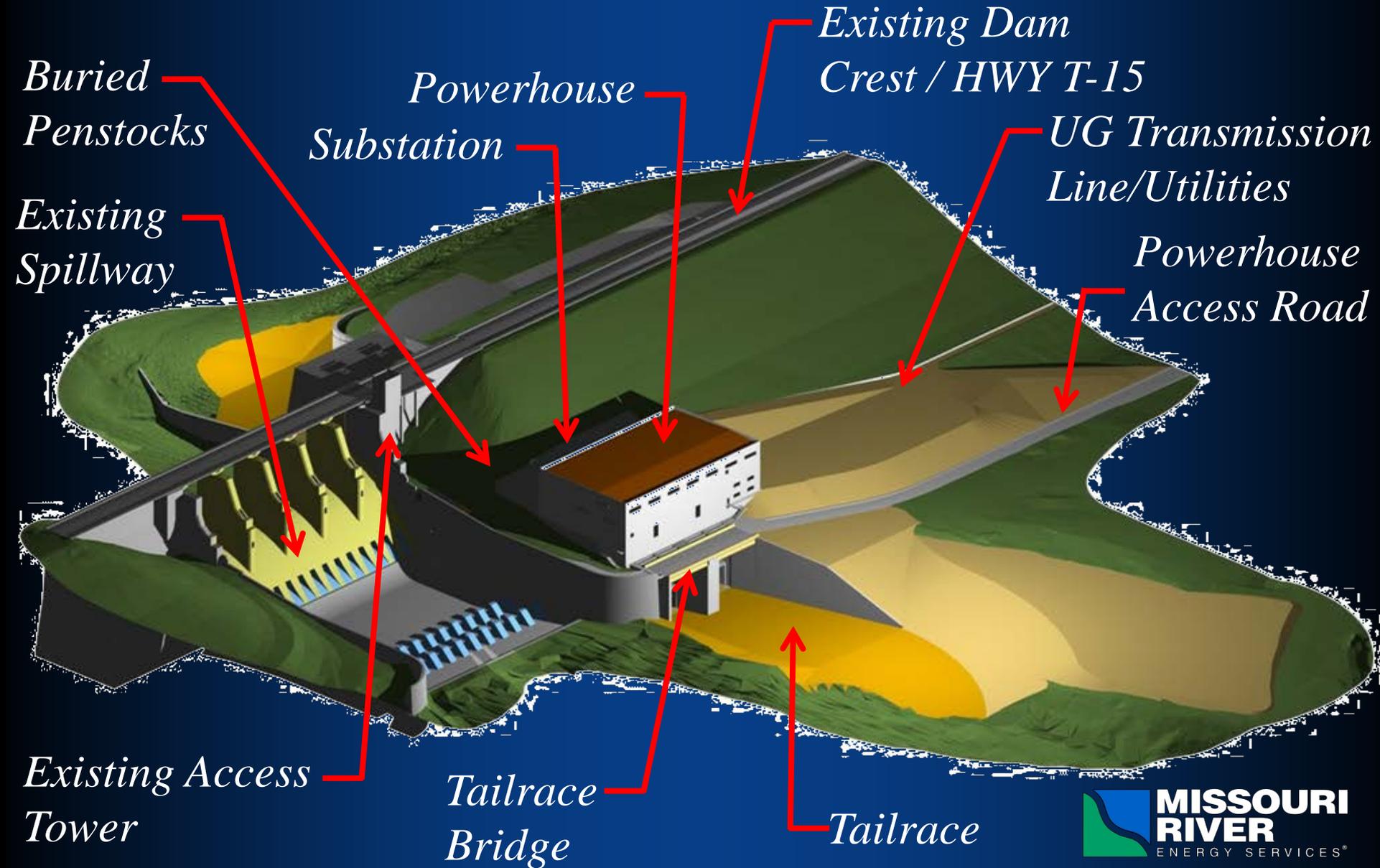
*Diaphragm
wall*

*Intake
Structure*

*Approach
Channel*



Project Features Downstream



RRHP Groundbreaking



MRES officially broke ground Wednesday, Aug. 13, 2014, for RRHP at Lake Red Rock near Pella, Iowa. The groundbreaking featured remarks from several dignitaries from federal, state, and local government, the U.S. Army Corps of Engineers (Corps), as well as officials from MRES and WMMPA.



MRES Services

- Wholesale power supply and transmission
- Member & Customer Energy Services
 - Bright Energy Solutions®
 - Coordinated Demand Response / AMI
 - Infrared digital thermography, motor testing, ULD
- Retail rate studies
- Distribution maintenance assistance
- WAPA monitoring and participation
- Representation in state, regional, and national trade associations
- Legislative and Regulatory (Federal & State)

Public Power Advocacy



Rep. Collin Peterson (D-Minn.) met with representatives from Minnesota communities and MRES staff. Pictured, from left: John Perino, Alexandria, Minn.; Mayor Sara Carlson, Alexandria, Minn.; Shelby Kuntz, Owatonna, Minn.; Corinne Stefanson, Moorhead, Minn.; Mayor Tom Kuntz Owatonna, Minn.; Larry Buboltz, Detroit Lakes, Minn.; Bill Schwandt, Moorhead (Minn.) Public Utilities; Al Crowser, ALP Utilities, Alexandria, Minn.; and Deb Birgen, MRES.

Laramie River Station

