



**Background**

**CAP**  
CENTRAL ARIZONA PROJECT

- Board workshops in October 2013 and June 2014 defined CAP energy needs and alternatives
- FAP briefing in April 2015
- Continuing Board questions:
  - What is the plan for replacing NGS when it is no longer available?
  - How and when should CAP diversify its energy portfolio?

YOUR WATER. YOUR FUTURE. 2

The slide has a white background with a blue curved border at the bottom. The CAP logo is in the top right. The background image shows a winding river in a desert landscape.

## Replacing NGS



- NGS currently supplies about 92% of CAP pumping energy needs
- When the time comes to replace NGS, CAP would assemble a diversified energy portfolio
  - Diversification reduces overall risk and promotes price stability, especially during periods of uncertainty
  - Preferably, no single generation source or contract would supply more than 15-20% of CAP's pumping requirements
  - Majority of portfolio must be "baseload" resource

YOUR WATER. YOUR FUTURE.

3

## Methods of Diversification



- Sources of generation
- Types of agreement



YOUR WATER. YOUR FUTURE.

4

## Generation Alternatives



- At present, only natural gas-fired generation would likely be available to meet CAP's baseload needs
  - New coal and hydropower not likely
  - Long lead time for nuclear
  - Wind, solar cannot provide baseload resource
- Diversification by type of generation may not be feasible
- CAP may be able to use some renewables as a supplementary resource

YOUR WATER. YOUR FUTURE.

5

## Alternative Forms of Agreement



- Market purchase of electricity
- Purchase power agreements
- Ownership of generation
- Full requirements agreement

YOUR WATER. YOUR FUTURE.

6

## Timing for Agreements



Options	Time to Develop
Market purchase – Day ahead	Immediate
Market purchase – Forward purchase – a few months	Immediate
PPA – energy	Six months
PPA – cost plus fuel	Six months
PPA – unit entitlement	One year
Purchase an existing generation plant	One year
Full requirements agreement	Two years + *
Build a new generation plant	Five-seven years
* Assuming transmission is available, which is unlikely	

YOUR WATER. YOUR FUTURE.

7

## Exploring Diversification



- CAP initiated a formal Statement of Qualification (SOQ) process in August 2010 for potential alternative energy providers
- Team of CAP analysts, engineers and managers evaluated about a dozen submissions and invited more detailed proposals with indicative pricing
- Ultimately, 7 respondents provided final proposals
- CAP did not pursue any of the proposals because costs were greater than NGS

YOUR WATER. YOUR FUTURE.

8

## Exploring Diversification



Following the conclusion of the SOQ process, staff has continued to meet with and evaluate proposals from alternative suppliers, including:

- Tenaska
- Wayzata
- CalEnergy
- StarWest
- AZ Solar
- Invenergy
- Toshiba
- Longview
- EWP
- AEPCO

YOUR WATER. YOUR FUTURE.

9

## Current Status



- CAP has a reliable, economic resource in NGS
- Other generation alternatives are 2-4 times more expensive than NGS at present
- NGS energy not used by CAP is sold by WAPA
- Under current market conditions, NGS surplus sales rarely result in profit and often create loss
  - Over the past 3 years, annual losses have ranged from \$2M to \$14M
  - Losses in 2015 could be higher

YOUR WATER. YOUR FUTURE.

10

## Conclusions

- CAP will have 1-2 years notice before NGS closes
- CAP can assemble a diversified energy portfolio in that time frame to replace NGS
- Generally, the new portfolio will be from natural gas-fired generation
- It is not economic to diversify today
  - Cost of alternatives > NGS cost
  - Market price < NGS cost

## Recommended Strategy

- When NGS is no longer available, CAP should assemble a diversified energy portfolio to meet its pumping needs
  - Diversification of generation types is desirable but may not be feasible to meet baseload requirements
  - Diversification can be achieved through multiple agreements from various energy suppliers
  - No single generation source or contract should provide more than 15-20% of CAP energy needs

## Recommended Strategy



- Staff should continue to pursue and interact with alternative energy suppliers/developers and provide regular updates to the Board on:
  - Market prices for energy
  - Technological advances
  - Cost of alternative generation

YOUR WATER. YOUR FUTURE.

13

## Recommended Strategy

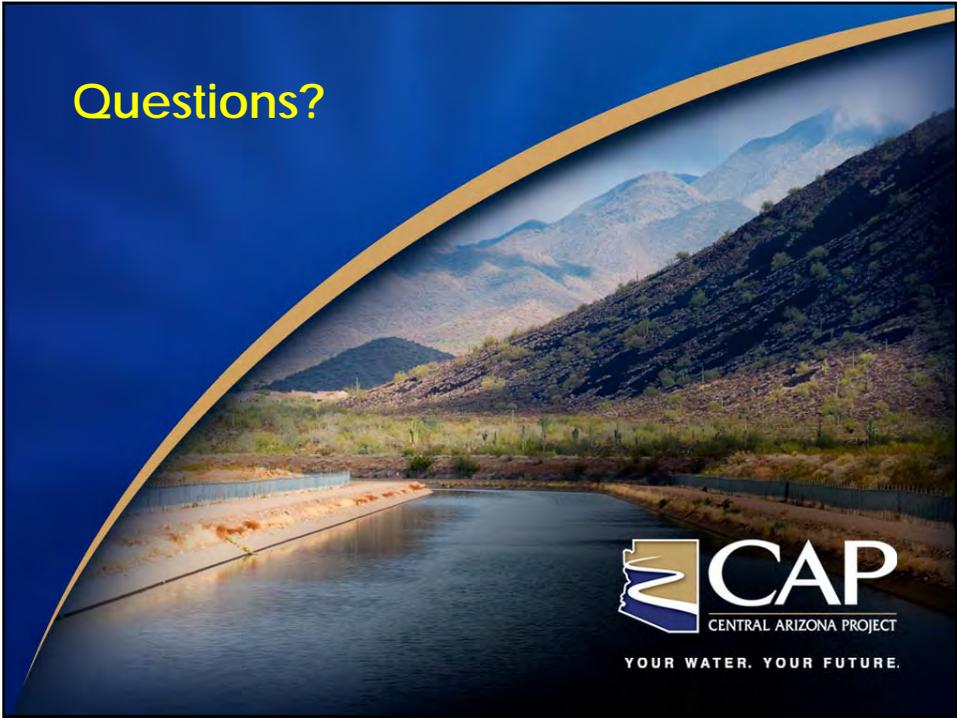


- CAP should consider diversifying before NGS closes if economical to do so—i.e., if the cost of alternative generation is comparable to or less than the market value of Navajo Surplus

YOUR WATER. YOUR FUTURE.

14

Questions?



 **CAP**  
CENTRAL ARIZONA PROJECT  
YOUR WATER. YOUR FUTURE.