

## Power Task Force Agenda Number 2.



**Post-NGS Power Strategy**

**Power Task Force**  
February 16, 2017

Tom McCann  
Ron Lunt  
Brian Young

**PROTECT  
LAKE MEAD**

**CAP**  
CENTRAL ARIZONA PROJECT  
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The slide features a background image of a reservoir in a desert landscape with mountains in the distance. A blue and gold curved graphic element is on the left side.

### **Board Approved Post-NGS Strategy**

- When NGS is no longer available, CAP will assemble a diversified energy portfolio to meet its pumping needs
  - No single generation source or contract should provide more than 15-20% of CAP energy needs
- CAP will pursue those power resources that offer the lowest levelized cost of ownership while still meeting CAP pumping needs and Board strategy



## **Power Task Force Agenda Number 2.**

### **CAP Post-NGS Power Strategy**


When NGS is no longer available, CAP will assemble a diversified energy portfolio to meet its pumping needs. No single generation source or contract should provide more than 15-20% of CAP energy needs.

In assembling that portfolio, CAP will pursue those power resources that offer the lowest levelized cost of ownership while still meeting CAP pumping needs and Board strategy.

# Power Task Force Agenda Number 2. Attachment 1.



## Background



- 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?

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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 reservoir in a desert landscape. The text is in a sans-serif font.

## 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

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## Methods of Diversification



- Sources of generation
- Types of agreement



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## 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

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## Alternative Forms of Agreement



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

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## 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	

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## 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

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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

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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

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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

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11

## 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

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12



## Recommended Strategy



- CAP should encourage the development of new generation in Arizona to ensure CAP will have the energy necessary to provide water well beyond the life of NGS.
- CAP will continue to work with utilities and conventional & alternative power providers to develop a diversified energy portfolio.
- Staff should provide regular updates to the Board on:
  - Market prices for energy
  - Technological advances
  - Cost of alternative generation

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13

## Recommended Strategy

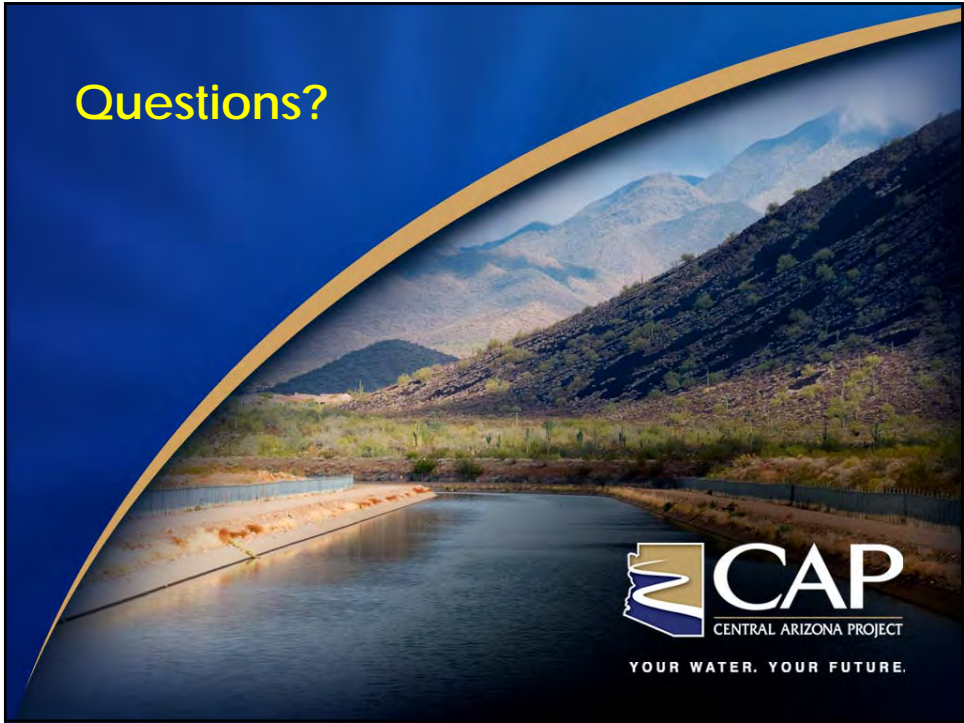


- CAP should consider diversifying before NGS closes if economical to do so—i.e., if the cost of alternative generation is comparable to or less than the market value of Navajo Surplus

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14

Questions?



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## Power Task Force Agenda Number 2. Attachment 2.

### REGULAR MEETING OF THE BOARD OF DIRECTORS October 1, 2015

The regular meeting of the Central Arizona Project (“CAWCD” or “CAP”) Board of Directors was called to order by President Lisa Atkins on October 1, 2015, at 10:00 a.m. The meeting was held at the Central Arizona Project Headquarters Building, located at 23636 North Seventh Street, Phoenix, Arizona, in the Board Room. Secretary Frank Fairbanks was present.

Board members present were President Lisa Atkins, Maricopa County; Gayle Burns, Maricopa County; Guy Carpenter, Maricopa County; Karen Cesare, Pima County; Frank Fairbanks, Maricopa County; Jim Hartdegen, Pinal County; Jim Holway, Maricopa County; Pat Jacobs, Pima County; Mark Lewis, Maricopa County; Heather Macre, Maricopa County; Sharon Megdal, Pima County (by teleconference); Cynthia Moulton, Maricopa County; Pamela Pickard, Maricopa County; and Warren Tenney, Pima County.

Terry Goddard, Maricopa County, was absent.

Staff members present were Ted Cooke, Interim General Manager; Jay Johnson, General Counsel; Tom McCann, Deputy General Manager, Operations & Maintenance; Marie Pearthree, Deputy General Manager, Strategic Initiatives & Public Policy; Kathryn Royer, Associate General Manager, Communications and Internal Affairs; Doug Dunlap, Manager, Finance & Accounting; Ron Lunt, Manager, Power Programs; David Johnson, Senior Attorney; and Bridget Schwartz-Manock, Legislative Affairs and Board Relations Manager.

#### **PLEDGE OF ALLEGIANCE TO THE FLAG, MOMENT OF SILENCE AND SAFETY MINUTE**

Director Tenney led the Directors and public in reciting the pledge of allegiance to the flag of the United States of America and a moment of silence. Director Tenney presented a Safety Minute on CAP's disaster preparedness program and the importance of being prepared in the event of an emergency.

#### **CONSIDERATION OF ACTION TO APPROVE ITEMS ON THE CONSENT AGENDA**

Directors Tenney and Megdal asked to have removed from the Consent Agenda the Approval of Agreement between the Metropolitan Domestic Water Improvement District and the Central Arizona Water Conservation District to Purchase Long Term Storage Credits Accrued in the Tucson AMA.

**By unanimous consent, the Board approved minutes of the September 3, 2015, Regular Meeting; approved the award of a contract to World Wide Technologies in the amount of \$311,423 for the CISCO Smartnet license/maintenance agreement and authorized the General Manager, or his designee, to execute the agreement; approved the award of a construction contract to SDB for \$292,503 plus \$30,000 (10%) for contingencies (totaling \$322,503) for the construction of safety message boards and gate controls at Salt Gila and Waddell Pumping Plants, and authorized the General Manager, or his designee, to execute the contract and administer the contingency; approved an Intergovernmental Agreement between the Superstition Mountains Community Facilities District No. 1 and the Central Arizona Water Conservation District for the Purchase and Sale of Long Term Storage Credits; and approved the award of a contract to Autodesk, Inc. in the amount of \$300,095**

**Approved:**  
Sept 3, 2015  
mins; CISCO  
license/maint  
agmt; constr.  
contract for  
safety  
message  
boards/gate  
controls at SG  
& Waddell  
PPs; IGA b/w  
Superstition  
Mts Comm  
Fac Dis #1 &  
CAWCD for  
LTSC;  
Autodesk for  
Vault Impl  
Program

**plus an additional \$30,009 (10%) for contingencies for the Vault Implementation Project and Deployment Training and authorized the General Manager, or his designee, to execute the agreement.**

**CONSIDERATION OF ACTION TO APPROVE ITEMS REMOVED FROM THE CONSENT AGENDA**

Director Tenney recused himself from discussion and voting on the following issue due to a potential conflict of interest. Staff responded to questions concerning the Approval of an Agreement between the Metropolitan Domestic Water Improvement District and the Central Arizona Water Conservation District to Purchase Long Term Storage Credits Accrued in the Tucson AMA

**On a motion (Director Megdal) and a second, the Board approved a Purchase and Sale Agreement for Long Term Storage Credits between the Metropolitan Domestic Water Improvement District and the Central Arizona Water Conservation District.**

Approved:  
LTSC  
purchase  
agmt w/  
MDWID

**REPORT OF PUBLIC POLICY COMMITTEE**

Director Burns reported on the October 1, 2015, Public Policy Committee meeting, including the committee's recommendations to adopt the 2016 state and federal legislative agendas.

**On a motion (Director Burns) and a second, the Board adopted the Recommended 2016 State Legislative Agenda, as amended by the Public Policy Committee on October 1, 2015.**

**Adopted**  
2016  
State &  
Federal  
Leg.  
Agendas

**On a motion (Director Burns) and a second, the Board adopted the Recommended 2016 Federal Legislative Agenda.**

**REPORT OF FINANCE, AUDIT & POWER COMMITTEE**

Director Tenney reported on the September 17, 2015, meeting of the Finance, Audit & Power Committee and summarized the committee recommendations.

**Possible Consideration of Action to Authorize Additional 2015 Spending Authority for Capital Expenditures Related to the APS and Hassayampa Tap Projects**

**On a motion (Director Tenney) and a second, the Board authorized additional 2015 spending authority for capital expenditures related to the APS and Hassayampa Tap projects in the amount of \$6,857,100.**

**Approved**  
2015 addtl  
spending  
authority rel  
to APS/  
Hassayampa  
Tap Projects

**Budget Status Report**

In preparation of the Board's consideration of the 2016 and 2017 budget, Mr. Dunlap provided a general overview of key budget components.

**Discussion and Possible Consideration of Action to Recommend Approval of a Post-NGS Power Strategy**

Mr. McCann reviewed power generation options that CAP could choose to pursue once NGS is no longer available. He explained that based on current conditions it is not economical for CAP to diversify its power resources at this time. Staff responded to questions from the Board related to generation options and market conditions.

**On a motion (Director Lewis) and a second the Board approved the Post-NGS Power Strategy as presented and discussed at the October 1, 2015, Board meeting, adding that CAP will pursue those power resources that offer the lowest levelized cost of ownership while still meeting CAP pumping needs and Board strategy.**

#### **REPORT OF CAGRD & UNDERGROUND STORAGE COMMITTEE**

Director Fairbanks reported on the September 17, 2015, CAGRD & Underground Storage Committee meeting. The Committee heard reports on an audit that was conducted to review the accuracy of member land water provider annual reports; reviewed findings from the Cost of Service study; and discussed the role of the CAGRD in water conservation efforts. They also heard a report on planning activities in the CAP service area.

#### **STRATEGIC PLANNING TASK FORCE**

Director Carpenter reported that the Task Force is planning the Strategic Planning Retreat that will be held on October 27. A Strategic Planning survey was sent to Board members and approximately 300 stakeholders. The survey results will help the Task Force prioritize issues that will be discussed at the Retreat.

#### **REPORT ON ARIZONA WATER PROTECTION FUND COMMISSION MEETING HELD AUGUST 25 & 26, 2015**

Director Jacobs reported on the August 25 & 26, 2015, Arizona Water Protection Fund Commission meetings. The Commission reviewed grant applications and approved two grants.

#### **REPORT ON ARIZONA WATER BANKING AUTHORITY MEETING HELD SEPTEMBER 16, 2015**

Director Hartdegen reported on the September 16, 2015, Arizona Water Banking Authority meeting.

#### **REPORT AND DISCUSSION OF COLORADO RIVER ACTIVITIES, INCLUDING BUT NOT LIMITED TO WATER SUPPLY AND DISCUSSIONS AMONG THE SEVEN BASIN STATES ON MANAGEMENT OF THE RIVER**

Ms. Pearthree reported:

- Elevations in the Upper Basin reservoirs have dropped slightly. Lake Mead has increased slightly as a result of the Bureau of Reclamation's (BOR) efforts to meet this water year's 9 million acre-foot (maf) release from Lake Powell to Lake Mead.
- The three month precipitation forecast shows higher than normal precipitation, which is still consistent with a strong El Nino signal.
- CAP is a participant in the Bypass Flows Work Group that is working to identify solutions to reduce the loss of more than 100 kaf annually of bypass flows to Mexico in the Main Outlet Drain Extension (MODE).
- CAP is responding to questions from Imperial Irrigation District (IID) concerning a forbearance agreement that requires their approval as part of the Intentionally Created Surplus program. This is part of the Memorandum of Understanding that was adopted in December of 2014. The other seven Lower Basin States entities have already approved the agreement.

Update on Gold King Mine Spill

Ms. Pearthree reported that, as a precaution following the Gold King Mine Waste Spill, CAP has been sampling water more frequently since September. Water samples continue to show normal ranges.

Discussion Concerning a Possible Forbearance Agreement with Salt River Project Agricultural Improvement and Power District

Mr. David Johnson reviewed the terms of the Ag Pool Forbearance Program (Program) that was approved by the Board at the October 2, 2014, meeting. Salt River Project (SRP) did not previously qualify for this program in 2015 because they had not taken full delivery of their Ag Pool Water during the three year period between 2012-2014. However, during the 2013-2015 period, SRP did take full delivery of their Ag Pool Water. Accordingly, CAWCD staff believes that adding SRP to the Program for 2016 is appropriate. The Board will be asked to take action on this item at the November Board meeting.

Discussion Concerning Possible Pilot System Conservation Agricultural Pool Program

Mr. David Johnson reviewed the Colorado River System Pilot System Conservation Program that was adopted by the Board at the April 3, 2014, meeting. CAWCD has met with representatives from various irrigation districts to draft a standard form agreement for a Pilot System Conservation Program Ag Pool Conservation Program. Mr. Johnson reviewed the materials terms of the proposed agreement. The Board will be asked to take action on this item at the November Board meeting.

Public Comment

Paul Orme, representing Central Arizona and Maricopa-Stanfield and New Magma Irrigation Districts, spoke in support of the agreement and responded to questions from the Board regarding the terms of the agreement.

**REPORT AND DISCUSSION OF CAP OPERATIONS AND MAINTENANCE**

Mr. McCann reported on CAP operation plans for the remainder of 2015. Mr. McCann announced that CAP maintenance has received the Uptime Award that acknowledges organizations that have achieved high levels of performance in maintenance reliability. Mr. McCann introduced maintenance managers Rich Weissinger, Darrin Francom, Bob Moody, Brian Buzard and Phil Rettinger. Terry Piekarz was unable to attend.

**REPORT ON AND DISCUSSION OF LEGAL MATTERS**

This item was not heard.

**DIRECTORS' REPORTS ON CURRENT EVENTS**

Directors reported on various meetings and events they attended.

**FUTURE AGENDA ITEMS**

There were no items given.

**PRESIDENT'S REPORT ON CURRENT EVENTS**

President Atkins reviewed current events and future meeting dates.

**GENERAL MANAGER'S REPORT ON CURRENT EVENTS**

Mr. Cooke reviewed items that will appear on the November Consent Agenda and also reported on current events.

**PUBLIC COMMENT**

None.

**CONSIDERATION OF ACTION TO GO INTO EXECUTIVE SESSION OF THE BOARD**

By unanimous consent, the Board convened in Executive Session at 12:54 p.m. for the following purposes: Pursuant to A.R.S. §§38-431.03.A.3 and 38-431.03.A.4 to consult with the attorneys for the District and consider the District's position and instruct its attorneys regarding potential water supply acquisitions; Pursuant to A.R.S. §38-431.03.A.1, to discuss potential contract terms to be offered to candidates for the General Manager position; and Pursuant to A.R.S. §38-431.03.A.3 to obtain legal advice from the District's attorneys on any matter listed on the agenda

The Board reconvened in open session at 2:12 p.m.

**CONSIDERATION OF ACTION REGARDING ITEMS DISCUSSED IN EXECUTIVE SESSION**

No action was taken.

There being no further business to come before the Board, the meeting adjourned at 2:12 p.m.

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Frank Fairbanks, Secretary