WAPA HQ 10-Year Capital Plan

FY21-30 estimates as of September 2020

WebEx

October 20, 2020

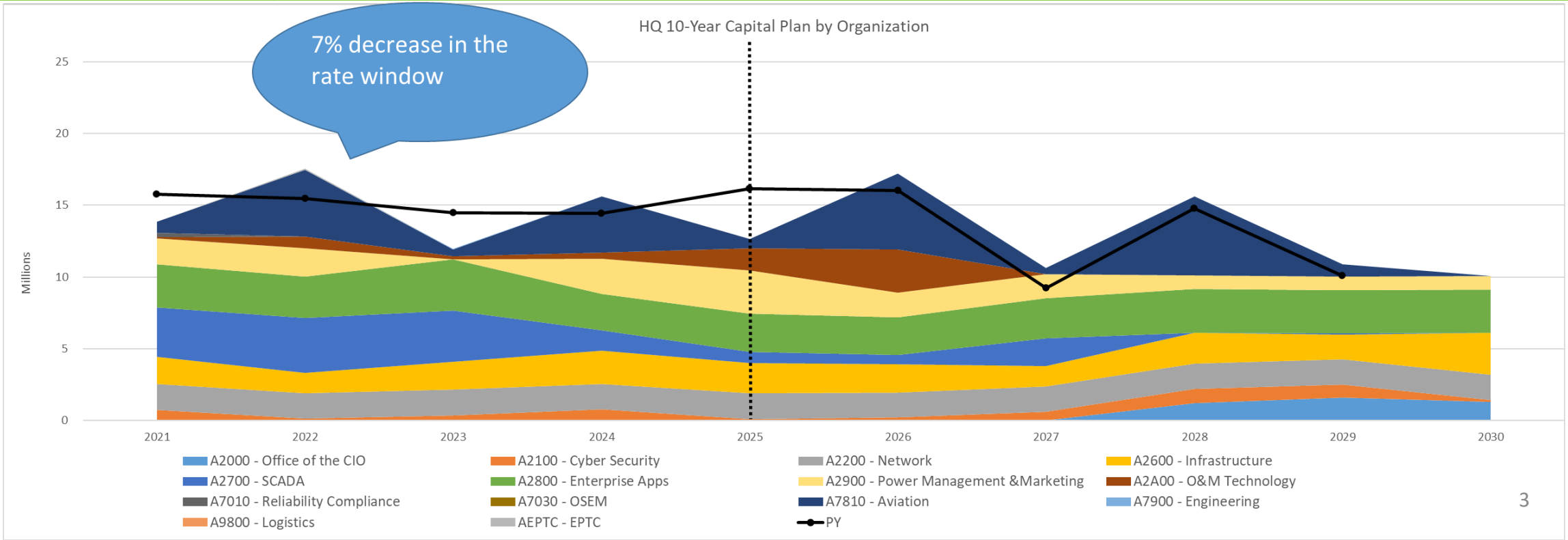
Western Area Power Administration

Introduction

- Welcome
- Approach to plan development
  - HQ/regional collaboration
  - Capital planning committee
  - Customer feedback
  - Consideration of future efficiencies
- Key drivers
  - Lifecycle management - IT, Aviation
  - Physical Security
  - Improved reliability & efficiency
- Today's focus

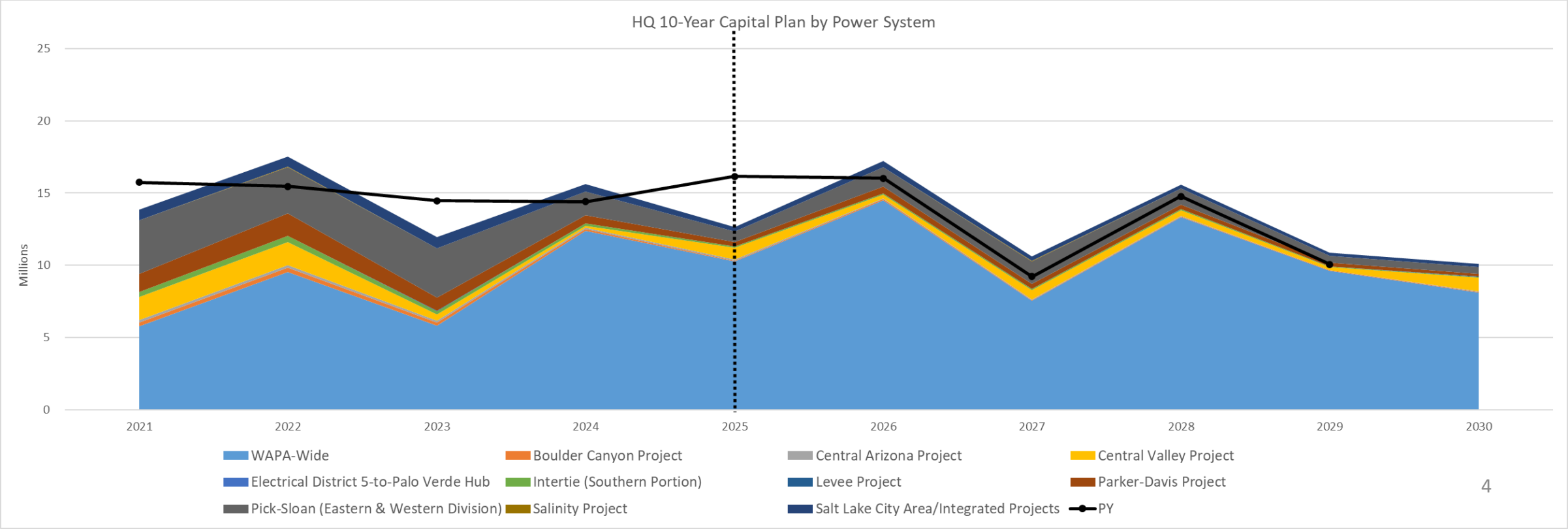
HQ 10-Year Capital Plan by Organization

Organization	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Grand Total	% of Total
A2000 - Office of the CIO								1,200,000	1,600,000	1,300,000	4,100,000	3%
A2100 - Cyber Security	751,000	125,000	363,000	771,000	110,000	210,000	611,000	1,014,000	906,000	121,000	4,982,000	4%
A2200 - Network	1,787,500	1,787,500	1,787,500	1,787,500	1,787,500	1,750,000	1,750,000	1,750,000	1,750,000	1,750,000	17,687,500	13%
A2600 - Infrastructure	1,877,000	1,400,000	1,937,000	2,295,400	2,115,600	1,940,170	1,434,250	2,135,550	1,720,000	2,935,432	19,790,402	15%
A2700 - SCADA	3,447,771	3,817,862	3,569,329	1,440,948	779,546	668,183	1,931,030		85,000		15,739,669	12%
A2800 - Enterprise Apps	3,020,000	2,880,000	3,555,000	2,510,000	2,650,000	2,610,000	2,800,000	3,050,000	3,025,000	3,025,000	29,125,000	21%
A2900 - Power Management &Marketing	1,793,628	1,987,423		2,450,000	3,000,000	1,725,000	1,650,000	950,000	950,000	950,000	15,456,051	11%
A2A00 - O&M Technology	100,000	800,000	250,000	450,000	1,550,000	3,000,000					6,150,000	5%
A7010 - Reliability Compliance	300,000										300,000	0%
A7810 - Aviation	750,000	4,650,000	450,000	3,900,000	650,000	5,300,000	450,000	5,500,000	850,000		22,500,000	17%
A7900 - Engineering			47,000								47,000	0%
AEPTC - EPTC	30,000	80,000	0								110,000	0%
Grand Total	**13,856,899**	**17,527,785**	**11,958,829**	**15,604,848**	**12,642,646**	**17,203,353**	**10,626,280**	**15,599,550**	**10,886,000**	**10,081,432**	**135,987,623**	**100%**



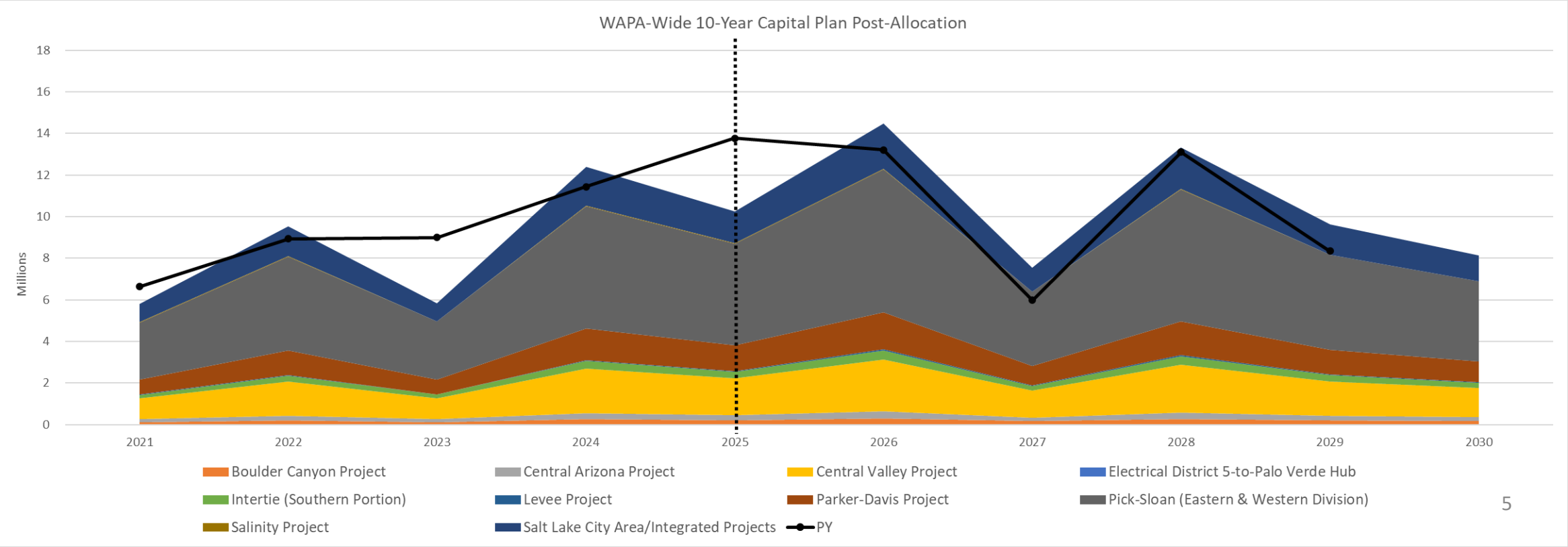
HQ 10-Year Capital Plan by Power System

Power System	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Grand Total	% of Total
Boulder Canyon Project	235,945	294,791	194,035	110,039	71,236	93,622	64,636	54,693	26,447	42,697	1,188,142	1%
Central Arizona Project	159,796	202,699	140,282	77,138	52,254	67,396	44,277	37,605	17,748	31,440	830,635	1%
Central Valley Project	1,597,125	1,587,889	431,875	165,625	829,625	223,500	641,775	391,000	223,500	968,500	7,060,415	5%
Electrical District 5-to-Palo Verde Hub	3,553	4,355	2,678	1,585	963	1,300	960	808	403	574	17,178	0%
Intertie (Southern Portion)	344,621	409,933	223,346	143,026	76,903	109,733	91,011	76,071	39,738	45,279	1,559,660	1%
Levee Project	12,600	15,543	9,782	5,705	3,542	4,739	3,419	2,884	1,423	2,115	61,752	0%
Parker-Davis Project	1,263,819	1,534,095	908,580	550,888	322,477	442,675	338,824	284,656	259,077	191,511	6,096,602	4%
Pick-Sloan (Eastern & Western Division)	3,699,776	3,229,700	3,415,055	1,644,556	705,654	1,353,114	1,572,024	1,116,500	482,250	464,750	17,683,377	13%
Salinity Project	25,248	30,746	18,438	11,090	6,572	8,973	6,785	5,705	2,873	3,908	120,337	0%
Salt Lake City Area/Integrated Projects	720,416	693,035	772,758	498,795	311,821	408,131	332,319	288,578	211,541	209,227	4,446,620	3%
WAPA-Wide	5,794,000	9,525,000	5,842,000	12,396,400	10,261,600	14,490,170	7,530,250	13,341,050	9,621,000	8,121,432	96,922,902	71%
Grand Total	**13,856,899**	**17,527,785**	**11,958,829**	**15,604,848**	**12,642,646**	**17,203,353**	**10,626,280**	**15,599,550**	**10,886,000**	**10,081,432**	**135,987,623**	**100%**



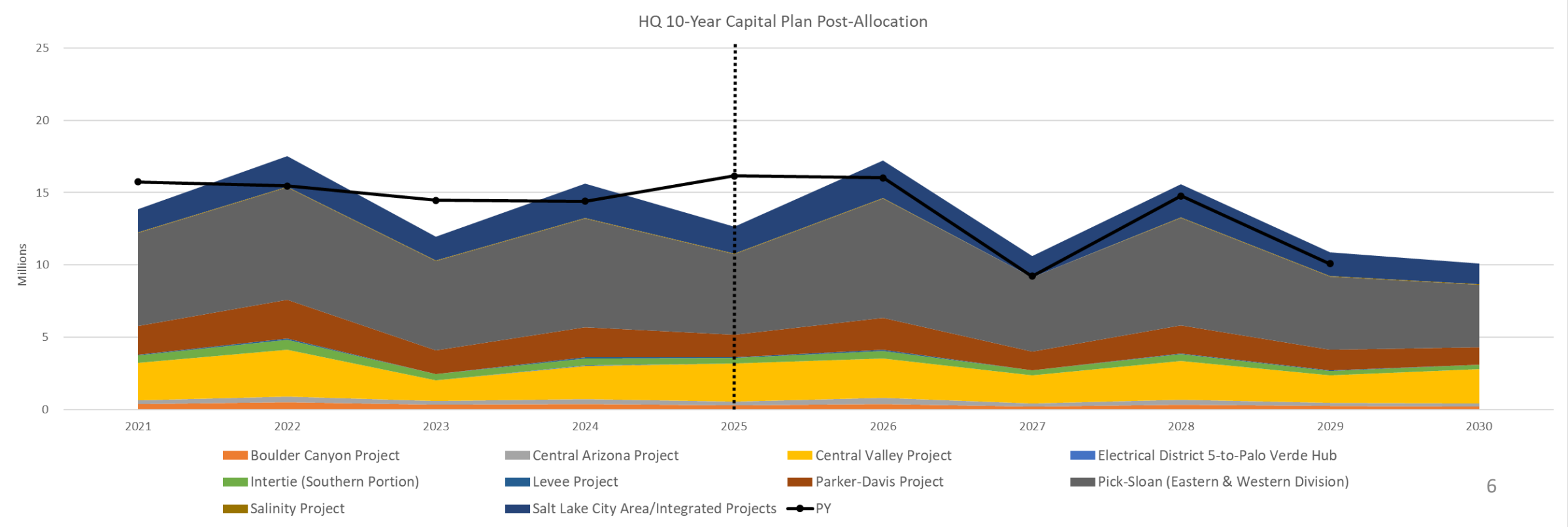
WAPA-Wide 10-Year Capital Plan Post-Allocation

Power System	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Grand Total	% of Total
Boulder Canyon Project	121,095	199,073	122,098	259,085	214,467	302,845	157,382	278,828	201,079	169,738	2,025,689	2%
Central Arizona Project	132,103	217,170	133,198	282,638	233,964	330,376	171,690	304,176	219,359	185,169	2,209,842	2%
Central Valley Project	997,727	1,640,205	1,005,992	2,134,660	1,767,048	2,495,207	1,296,709	2,297,329	1,656,736	1,398,511	16,690,124	17%
Electrical District 5-to-Palo Verde Hub	2,318	3,810	2,337	4,959	4,105	5,796	3,012	5,336	3,848	3,249	38,769	0%
Falcon-Amistad	579	953	584	1,240	1,026	1,449	753	1,334	962	812	9,692	0%
Intertie (Southern Portion)	173,820	285,750	175,260	371,892	307,848	434,705	225,908	400,232	288,630	243,643	2,907,687	3%
Levee Project	20,858	34,290	21,031	44,627	36,942	52,165	27,109	48,028	34,636	29,237	348,922	1%
Parker-Davis Project	710,344	1,167,765	716,229	1,519,799	1,258,072	1,776,495	923,209	1,635,613	1,179,535	995,688	11,882,748	12%
Pick-Sloan (Eastern & Western Division)	2,750,991	4,522,470	2,773,782	5,885,811	4,872,208	6,879,933	3,575,363	6,334,331	4,568,051	3,856,056	46,018,994	47%
Salinity Project	12,747	20,955	12,852	27,272	22,576	31,878	16,567	29,350	21,166	17,867	213,230	1%
Salt Lake City Area/Integrated Projects	871,418	1,432,560	878,637	1,864,419	1,543,345	2,179,322	1,132,550	2,006,494	1,446,998	1,221,463	14,577,205	15%
Grand Total	**5,794,000**	**9,525,000**	**5,842,000**	**12,396,400**	**10,261,600**	**14,490,170**	**7,530,250**	**13,341,050**	**9,621,000**	**8,121,432**	**96,922,902**	**100%**



HQ 10-Year Capital Plan Post-Allocation

Power System	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Grand Total	% of Total
Boulder Canyon Project	357,040	493,864	316,133	369,124	285,703	396,467	222,019	333,521	227,526	212,435	3,213,831	2%
Central Arizona Project	291,899	419,869	273,480	359,776	286,218	397,772	215,967	341,781	237,107	216,609	3,040,478	2%
Central Valley Project	2,594,852	3,228,094	1,437,867	2,300,285	2,596,673	2,718,707	1,938,484	2,688,329	1,880,236	2,367,011	23,750,538	17%
Electrical District 5-to-Palo Verde Hub	5,871	8,165	5,015	6,544	5,067	7,096	3,972	6,145	4,251	3,822	55,947	0%
Falcon-Amistad	579	953	584	1,240	1,026	1,449	753	1,334	962	812	9,692	0%
Intertie (Southern Portion)	518,441	695,683	398,606	514,918	384,751	544,438	316,918	476,302	328,368	288,922	4,467,347	3%
Levee Project	33,458	49,833	30,813	50,332	40,484	56,903	30,528	50,912	36,059	31,352	410,675	1%
Parker-Davis Project	1,974,163	2,701,860	1,624,809	2,070,687	1,580,549	2,219,170	1,262,033	1,920,269	1,438,612	1,187,198	17,979,350	13%
Pick-Sloan (Eastern & Western Division)	6,450,768	7,752,170	6,188,836	7,530,366	5,577,861	8,233,047	5,147,386	7,450,831	5,050,301	4,320,806	63,702,371	47%
Salinity Project	37,994	51,701	31,291	38,362	29,148	40,851	23,352	35,055	24,039	21,775	333,568	1%
Salt Lake City Area/Integrated Projects	1,591,833	2,125,595	1,651,395	2,363,214	1,855,165	2,587,453	1,464,868	2,295,072	1,658,539	1,430,690	19,023,825	14%
Grand Total	**13,856,899**	**17,527,785**	**11,958,829**	**15,604,848**	**12,642,646**	**17,203,353**	**10,626,280**	**15,599,550**	**10,886,000**	**10,081,432**	**135,987,623**	**100%**



Information Technology

Michael Montoya
Senior VP and Chief Information Officer

Western Area Power Administration

Information Technology at WAPA

- Principles / philosophy
- Base program
  - Lifecycle management
  - Patching and upgrades
  - Compliance
- FY 2020 priorities
  - Common SCADA vendor
  - Energy Imbalance Markets
  - Modern Workplace/O365
  - Tridium replacement
  - T-line inspection tool
- Megatrends

Investing in network, infrastructure

- Investing in connected energy future
  - Prepared us for COVID response
- Network modernization
  - Security enhancements
  - Network traffic growth
- Reduce data center footprint
  - Increase bandwidth
  - Migrate to primary or cloud
  - Eliminate end-of-life cap projects ($4M)
- Drivers – mission-critical systems
  - Maintenance, Ops, Marketing
  - Compliance

Market Update

Rodney Bailey
Power Marketing Advisor

Western Area
Power Administration

Strategic Target Area: Mission Critical Customer Services in an Evolving Industry

In an evolving and transforming electric utility industry, WAPA will continue to evaluate, enhance and improve the services it provides to preference power and transmission customers.

Outcome: The value of WAPA's cost-based power, transmission and related services is enhanced in a transforming industry.

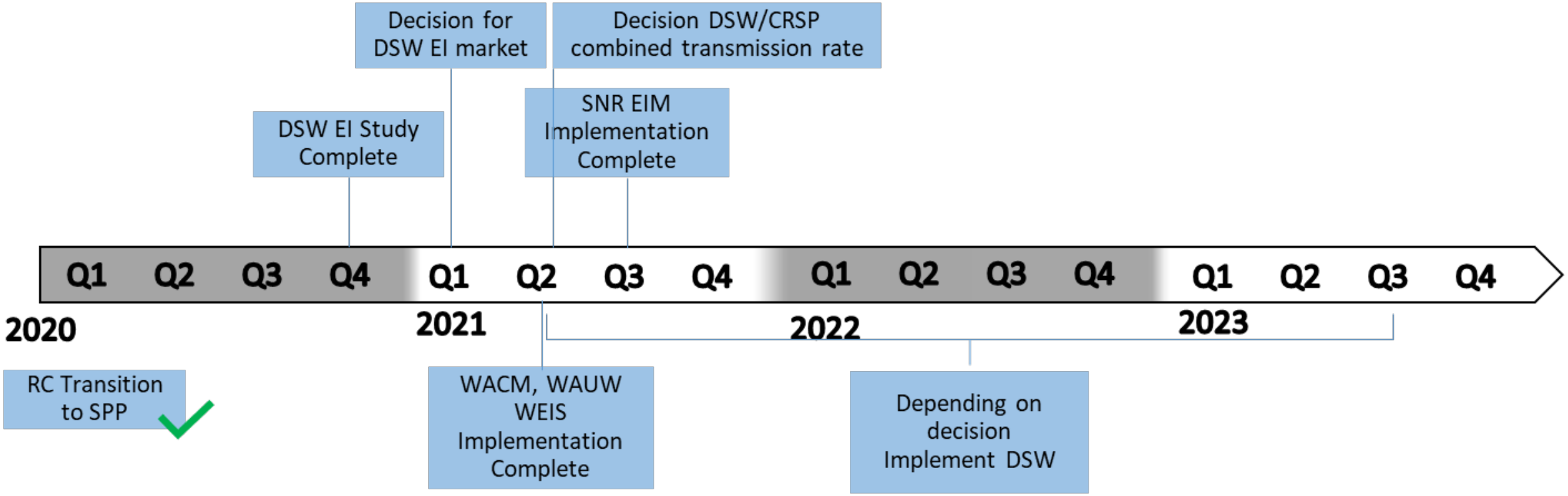
Prepare for Markets: Position WAPA for regional energy market participation by effectively managing industry changes surrounding WAPA's footprint while ensuring system reliability and alignment with WAPA's cost-effectiveness principles.

Prepare for Markets

Evolution of Services

Mutually Beneficial Partnerships

Major Milestones – FY21 Update



SN EIM Updates

- Formal rate process
  - Information and comment forum – August 17, 2020
  - Comment period closes – October 29, 2020
- Settlement Quality Meter data plan complete
- Transmission, Load & Generation Model complete
  - Software training and testing complete
- OATT Update filed October 2, 2020
- Go-Live – March 26, 2021

DSW Updates

- Production Cost Study – preliminary results received
  - Reviewing – suggest edits for final run
- Gap Analysis Study – results received
- Target Energy Imbalance Option Decision – Early 2021
- DSW/CRSP Joint Transmission rate analysis

SPP WEIS Updates as of Oct. 1st

- Initial SPP Tariff filing rejected by FERC
- SPP re-filed Tariff October 1, 2020
- WACM BA Business Practices posted on OASIS on Sept. 1st
  - Comments period has been extended to Oct. 9th
- WACM BA services agreement customer meeting Oct. 1st
  - Finalized Agreement will be sent to customers 1st week of Nov.
- 60% of market trials/testing complete
- 65% of staff training complete
- Go-live – projected February 1, 2021

Summary

- Continue to evaluate changes in the industry
- Make decision that are best for WAPA and our Customers
- One size does not fit all

- Questions?

IT Power Management & Marketing

Brett Fisher, VP of IT Power Management & Marketing
Jimmy Kendrick, VP of Power Marketing DSW

Western Area Power Administration

Energy Imbalance Markets Phase I/II (DSW) (#18-19)

What	Why
• $3.5M (FY21-FY22) • DSW is in the process of evaluating cost benefits for joining one of the two energy imbalance markets in the West	• Aligns with the Organizational Approach to Markets • Aligns with other WAPA EIM/WEIS implementations • Changing industry environment • Meets operational requirements
Value	**Alternatives**
• Addresses the risk of diminishing bilateral trading partners in favor of a robust market solution • Responds to the changing electricity industry • Addresses energy imbalance requirements with a broader scope of available resources • Supports ongoing reliability for the BAs • Maintains options for potential future Day-2 or fully integrated market in the Western Interconnection	• Alternative 1 – Status quo • Alternative 2 – Develop new solicitation for market tools • Alternative 3 – Procure COTS modules from current vendors • **Planned Alternative – Procure COTS modules from current vendors**

Metering Strategy—MV90 Infrastructure Enhancement Phase I & II (#14 - #15)

What

- $1.5M (FY26-FY27)
- Emerging requirement
- Critical revenue metering system(s)
  - Split into 2 phases

Why

- Each WAPA region currently has standalone implementations
- Status quo is resource intensive
- Single metering strategy is sustainable and supportable into the future

Value

- Improved efficiency in metering, energy accounting & billing
- Revenue reporting and data integration is maintainable and simplified
- Enhanced revenue tracking

Alternatives

- Alternative 1 – Status quo
- Alternative 2 – Write in-house metering system
- Alternative 3 – Assemble a team to develop the strategy

- **Planned Alternative – assemble team**

Power Billing Software System Phase I&II (#16 - #17)

What

- $5.5M (FY24-25)
- Base program – Lifecycle management
- Upgrade/replace In-house developed power billing system

Why

- In-house power billing system will be 15 years old
- Frameworks will need to be upgraded which aligns with effective life-cycle-management
- Adheres to WAPA cyber security policies

Value

- Facilitates common practices across WAPA
- Provides opportunity for efficient resource deployment
- Creates common, sustainable, access to data

Alternatives

- Alternative 1 – Status quo
- Alternative 2 – Re-write in-house system
- Alternative 3 - Look for existing COTS system (updated cost estimate)

- **Planned Alternative – COTS**

Upgrade/Replace In-house Developed Tools (#20 - #24)

What

- $4.7M (FY26-30)
- Base program – Upgrade
- In-house developed tools for WAPA specific processes
- Software lifecycle replacement of in-house power marketing related applications
- Reduced estimates due to reduction of in-house developed tools

Why

- Address WAPA specific business process needs
- No vendor options at the time in-house systems were built
- Unsupported by vendor

Value

- Facilitates exchange of information with business partners and customers
- Fill the WAPA process gaps
- Streamline solution to common issues

Alternatives

- Alternative 1 – Status quo
- Alternative 2 – Upgrade/replace
- Alternative 3 – Look for existing COTS system

- **Planned Alternative – Upgrade/replace**

IT SCADA

James Phillips
VP of IT SCADA

Western Area Power Administration

Common SCADA/EMS Vendor (#27-40)

What

- Procure and install a common SCADA/EMS system across WAPA's six control centers.
- FY19 – Evaluate/Analyze
- FY20 – Decide/Purchase Licensing ($2.57M)
- FY20/FY21 – Standardize configurations and support processes ($253K/$209K)
- FY20/FY21/FY22 - Implement in SNR ($2.08M/$863K/$673K)
- FY21/FY22/FY23/FY24 - Implement in UGP ($2.30M/$1.09M/$1.09M/$241K)
- FY23/FY24/FY25/FY26 - Implementation in DSW/RMR (2.30M/$780K/$780K/$668K)

Why

- System upgrades and lifecycle replacements are coming. This is an opportunity to take a fresh look at a WAPA-wide approach.
- Reduce costs associated with procurement, annual licensing, vendor support, internal support, and training.
- Improve ability to share expertise across all regions resulting in increased reliability.

Value

- Provide operational efficiencies
- Reduce human errors
- Increase system resilience
- Enhance WAPA's ability to recover quickly from outages

Alternatives

- SCADA/EMS systems from four vendors were evaluated.
- The OSI Monarch system was selected and procured. It was the best value.
- In preparation for the first implementation, the team is now working on standardizing configurations and support processes.

Historian Software License Renewal (#25 - #26)

What

- $3.8M (FY22, FY27)
- Base program – Lifecycle management
- Historian software provides a repository for the collection of bulk electric system data.
- The historian is bundled with analytical tools and display tools.
- The license renewal takes place every five years.

Why

- This enterprise agreement provides WAPA with unlimited use of the historian for data collected from DSW, RMR, and SNR substations. It is used by:
  - Operations
  - Maintenance
  - Power Marketing

Value

- Data produced by intelligent electronic devices (IED) is growing by leaps and bounds. It takes a product like a data historian to collect, analyze and display the data.
- It is used by Operations to monitor the electric system, by Maintenance for asset management, by Transmission Planning to design the grid, and by Power Marketing to observe power plants.

Alternatives

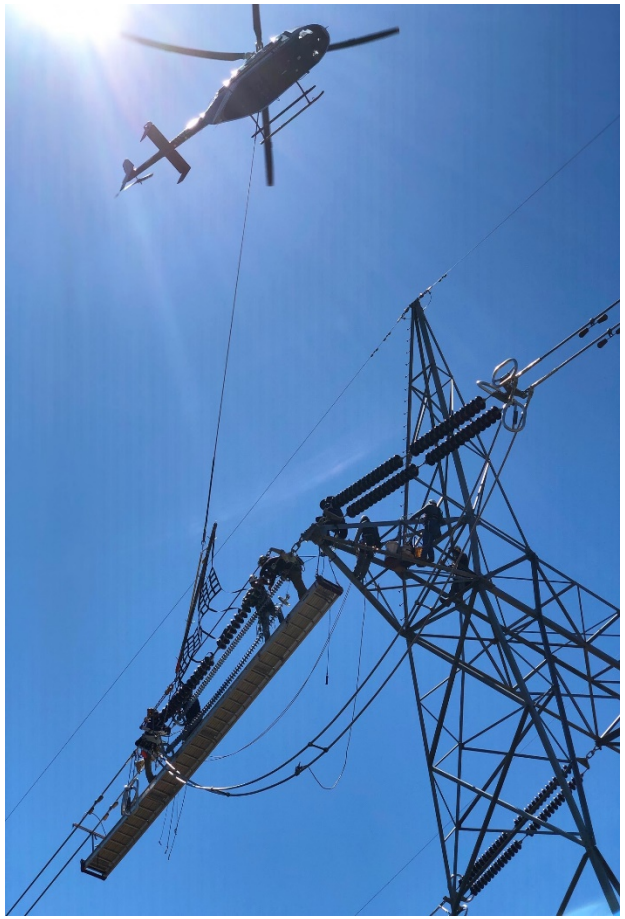
- Alternative 1 – Historian
- Alternative 2 – No Historian
- **Planned Alternative – Historian**

Aviation

Kevin Howard, Senior VP and Chief Operating Officer
Steve Yexley, VP of Technical Services

Helicopter benefits

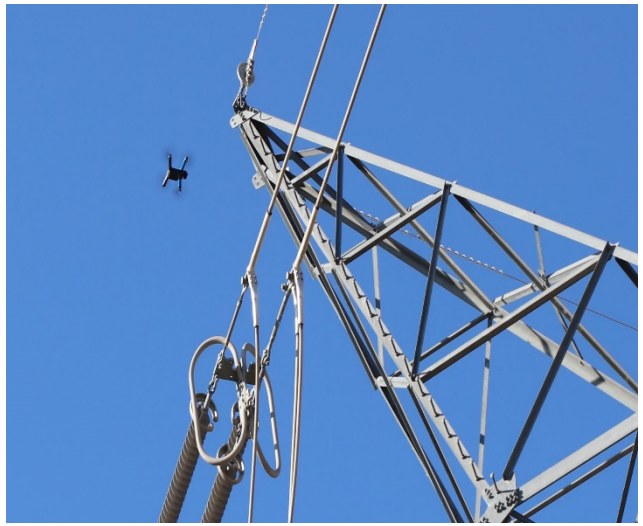
- Replaced 610 insulators on Malin – Round Mountain 500-kV via HEC
- Changed out failing insulators on 49 dead-end structures off peak
- Options
  - Climbing/trucks: >$7.424 million
  - HEC: $1,634,919
- Cost savings: ~$5.8 million
- Time savings: 1.5+ years



Malin–Round Mountain 500-kV HEC Insulator Changeout

Unmanned Aerial Vehicles

- Inspecting Transmission Structures prior to performing line work
- Options
  - Climbing (3 linemen x 3 phases per structure): $450
  - UAS (30 mins per structure): $88
- Cost savings/structure: ~$362
- Worker safety is a key factor
- WAPA has 114,500+ structures
- WAPA UAS fleet is U.S. made



UAV/UAS Aerial Inspections

Aviation – Helicopter LCM (#46-49)

What

- Base program – Lifecycle management
- Helicopter lifecycle replacements:
  - FY22 – $4M (N619DE – DSW)
  - FY24 – $3.5M (N617DE – RMR)
  - FY26 – $4.5M (N618DE – UGP)
  - FY28 – $5M (N620DE – SNR)
- $3.5M - $5M for new, similarly-equipped to current helicopters

Why

- Lifecycle replacements due to either age and/or number of hours on airframe.
- Increased operational costs of maintaining older aircraft
- Existing helicopters made in ‘00/’07/’08/’08
- Lifecycle is in accordance with FAA and DOE-OAM recommendations

Value

- Using helicopters and doing human external cargo(HEC)work provides cost/time savings
- Many WAPA locations are only reachable by helicopter, especially during winter season
- Helicopters are valuable for providing fire protection and quick emergency response
- New helicopters have a 2-year warranty which leads to reduced operational costs

Alternatives

- Alternative 1 – Replace w/new helicopters Alternative 2 – Replace w/quality used helicopters (dependent upon availability)
- Alternative 3 – Utilize contract helicopters
- Alternative 4 – Perform all line work and patrols utilizing ground-based methods

Planned Alternative – Alternative 1 or 2 depending availability of quality used units

Aviation – Helicopter Lifecycle Replacements Criteria

What

- WAPA Current Bell 407 Fleet Status
- N617DE -RMR 2008 model with 6,500 hours
- N618DE – UGPR 2007 model with 6,600 hours
- N619DE – DSWR 1998 model with 9,500 hours
- N620DE – SNR 2008 model with 2,300 hours
- All helicopters are similarly equipped

Why

- Component Lifecycle replacements are due to either component hours, cycles, or calendar months.
- Engine replacement and overhauls are approximately 2,000 hours.
- Rotor component overhauls and replacement are approximately 2,500 hours to 5,000 hours.
- Airframe manufacturers recommend a 10,000 hour or 10-year replacement but not mandatory due to increased maintenance inspection requirements.

Value

- An internally controlled and managed aviation program improves safety and reduces project risk.
- A well-maintained helicopter reduces risk to our flight crew increasing safety.
- Reliable helicopters and highly training flight crews are valuable for quick emergency responses and performing scheduled missions.
- A highly managed maintenance program directly controls a failure rate and reliance on contractors which reduces project costs.

Alternatives

- Alternative 1 – Purchase new improved design helicopters with a warranty and all new components.
- Alternative 2 – Continue to operate current aging helicopter fleet with known increase in failure rate and operational costs.
- Alternative 3 – Replace w/quality used helicopters with unknown historical status and repair costs.
- Alternative 4 – Utilize contract helicopters at an increased cost and lose control of risk.
- Alternative 5 – Perform all line work and patrols utilizing ground-based methods at an increased cost.

Security

Bruce Watson, OSEM Director
Ed Sanchez, VP of IT O&M Technology

Western Area Power Administration

Fusion Center Command & Control (#41-42)

What

- $4.55M (FY25-26)
- Emerging requirement
- Consolidate cross functional operations (EOC, security, EM, cyber operations) in one area
- Combine information across functional areas
- Provide stakeholders/SLT with a better common operational picture; uses GIS

Why

- Information comes in through one lens at a time…need to provide an integrated picture
- Consolidated operations are more efficient
- Provides enterprise view of incidents; coveys more useful information, better situational awareness and decision support

Value

- Better synergy/situational awareness across functional areas
- Enhanced capability of control centers:
  - Improved C3I across WAPA (more informed decisions, better speed, integration, and response)

Alternatives

- Alternative 1 - Rely on current regional security monitoring and response capability
- Alternative 2 - Combine CCs to collect information/respond to threats (natural, physical)
- Alternative 3 - Explore integration options with other federal agencies such as DHS

Planned alternative – Alternative 2

IT Enterprise Applications

Joe Fast
VP of IT Enterprise Applications

Chris Magee
Records and Information Management Program Manager

Western Area Power Administration

Enterprise Applications – Records Management (#12 - #13)

What

- $1.03M (FY21-22)
- Base program - Compliance
- Retire legacy electronic file storage systems by 2022
- Phased implementation plan to meet Presidential Directive and NARA requirements by CY22

Why

- Meet requirement of being fully electronic by 12/31/22
- Efficiently manage the amount of records WAPA creates

Value

- Identify authoritative business information
- Allow for continuity of access to WAPA information
- Create efficiencies by managing records in a central environment

Alternatives

Purchased COTS Solution in September 18

- Alternative 1 – Rely on manual processes
- Alternative 2 – Utilize manual and automated solutions
- Alternative 3 – Automate to the fullest extent possible
- **Planned Alternative 2**

Enterprise Applications
Hardware Lifecycle Replacements (#1 - #3)

What

- $5.1M (FY23, FY27-28)
- Base program – Lifecycle management
- Replace hardware hosting ~200 databases and applications used by WAPA Operations, Marketing, Maintenance and Finance business partners

Why

- Maintain business continuity, availability and reliability
- Aligns with lifecycle management strategy

Value

- Stay within warranty period and vendor support
- Maintain performance of hosted systems
- Maintain availability of hosted systems

Alternatives

- Alternative 1 - Status quo
- Alternative 2 - Replace
- Alternative 3 - Migrate to Cloud

- **Planned alternative for FY22/FY23 –** Replace

FIMS 12.2 Upgrades (#4)

What	Why
• $1.48M (FY21) • Base program – Upgrade • Financial Information Management System (FIMS) Upgrades	• Current version de-supported 12/2021 • 2025/2026 planning for future upgrades • Maintain vendor support for updates, maintenance and patches • Aligns with lifecycle management strategy
Value	**Alternatives**
• Leverage new features to comply with legislative, regulatory and compliance requirements • Vendor provides application and system security patches	• Alternative 1 – Status quo • Alternative 2 – Upgrade • Alternative 3 – Migrate to Cloud • **Planned alternative for FY20/21 –** Upgrade

Enterprise Applications Upgrades and Enhancements (#5 - #11)

What	Why
• $14.6M (FY24-30) • Base program – Upgrade/enhancements • Upgrades and enhancements for mission supporting finance, budget, maintenance, asset management, facility, procurement, reporting and collaboration systems.	• Aligns with lifecycle management strategy • Upgrades to other Enterprise Applications • Comply with legislative, regulatory and compliance requirements • Support WAPA strategic initiatives
Value • Leverage agile approach to deliver value sooner • Leverage a staff augmentation approach to reduce cost of delivery	**Alternatives** • Alternative 1 – Status quo • Alternative 2 – Leverage existing solutions • Alternative 3 – Buy new applications/tools • **Planned alternative –** Leverage existing tools

Questions & Next Steps

Provide Feedback to Colin Marquez at

cmarquez@wapa.gov

By November 3, 2020

Reference

HQ 10-Year Capital Plan $1M+ Project List

HQ 10-Year Capital Plan $1M+ Project List														
Org Name	Project #	Name Of Project	Project Classification	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Grand Total
A2800 - Enterprise Applications	#1 - #3	Enterprise Applications - Hardware Lifecycle Replacement	Replacement			2,200,000				1,800,000	1,100,000			5,100,000
	#4	FIMS 12.2 Upgrade and Enhancements	Upgrade	1,480,000										1,480,000
	#5 - #11	Enterprise Applications Upgrades and Enhancements	Upgrade/enhancement				2,260,000	1,950,000	2,360,000	1,000,000	1,950,000	2,550,000	2,550,000	14,620,000
	#12 - #13	Records Management - NARA	Compliance	590,000	440,000									1,030,000
	A2800 - Enterprise Applications Total			**2,070,000**	**440,000**	**2,200,000**	**2,260,000**	**1,950,000**	**2,360,000**	**2,800,000**	**3,050,000**	**2,550,000**	**2,550,000**	**22,230,000**
A2900 - Power Management & Marketing	#14 - #15	Metering Strategy - MV90 Infrastructure Enhancement	Emerging requirement						750,000	750,000				1,500,000
	#16 - #17	Power Billing Software System	Lifecycle management				2,450,000	3,000,000						5,450,000
	#18 - #19	Energy Imbalance Markets (DSW)	New	1,513,628	1,987,423									3,501,051
	#20 - #24	Upgrade/Replace In-house developed tools - update frameworks	Upgrade						975,000	900,000	950,000	950,000	950,000	4,725,000
	A2900 - Power Management & Marketing Total			**1,513,628**	**1,987,423**	**-**	**2,450,000**	**3,000,000**	**1,725,000**	**1,650,000**	**950,000**	**950,000**	**950,000**	**15,176,051**
A2700 - SCADA	#25 - #26	PI Historian software enterprise license renewal	Upgrade		1,887,695					1,931,030				3,818,725
	#27	Common SCADA/EMS Standardization(Phase 2)	Lifecycle management	209,991										209,991
	#28	Implementation of the Common SCADA vendor	Lifecycle management	68,000										68,000
	#29 - #30	Common SCADA/EMS - SNR Implementation	Lifecycle management	863,602	673,856									1,537,458
	#31 - #34	Common SCADA/EMS - UGP Implementation	Lifecycle management	2,306,178	1,086,311	1,086,311	241,402							4,720,202
	#35 - #38	Common SCADA/EMS - DSW/RMR Implementation	Lifecycle management			2,298,018	779,546	779,546	668,183					4,525,293
	A2700 - SCADA Total			**3,447,771**	**3,647,862**	**3,384,329**	**1,020,948**	**779,546**	**668,183**	**1,931,030**	**-**	**-**	**-**	**14,879,669**
A2600 - Infrastructure	#39	Common SCADA platform hardware - UGP - 2021	Lifecycle management	450,000										450,000
	#40	Common SCADA platform hardware - DSW/RMR - 2023	Lifecycle management			580,000								580,000
	A2600 - Infrastructure Total			**450,000**	**-**	**580,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,030,000**
A2A00 - O&M Technology	#41 - #42	Integrated Functional Control Center	Emerging requirement					1,550,000	3,000,000					4,550,000
	A2A00 - O&M Technology Total			**-**	**-**	**-**	**-**	**1,550,000**	**3,000,000**	**-**	**-**	**-**	**-**	**4,550,000**
A2000 - CIO	#43 - #45	IT Lifecycle and Strategic Initiatives	Replacement								1,200,000	1,600,000	1,300,000	4,100,000
	A2A00 - CIO Total			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1,200,000**	**1,600,000**	**1,300,000**	**4,100,000**
A7810 - Aviation	#46 - #49	Aviation Helicopter replacement	Lifecycle management		4,000,000		3,500,000		4,500,000		5,000,000			17,000,000
	A7810 - Aviation Total			**-**	**4,000,000**	**-**	**3,500,000**	**-**	**4,500,000**	**-**	**5,000,000**	**-**	**-**	**17,000,000**
Grand Total				**7,481,399**	**10,075,285**	**6,164,329**	**9,230,948**	**7,279,546**	**12,253,183**	**6,381,030**	**10,200,000**	**5,100,000**	**4,800,000**	**78,965,720**
		Projects highlighted in yellow are new to this year's plan												

Western Area Power Administration

Common SCADA/EMS Vendor (#27-40)

Description	Fiscal Year Perfomred	Sep-19	Sep-20	Difference
NPD total		**5.50**	**4.13**	**(1.37)**
Vendor service total		**-**	**6.43**	**6.43**
Fed labor total		**7.09**	**6.04**	**(1.05)**
Contract labor total		**1.64**	**0.56**	**(1.08)**
Total Project		**14.23**	**17.16**	**2.93**
Select vendor and purchase licenses	FY20	4.01	2.57	(1.44)
Standardization (vendor)	FY20	-	0.25	0.25
Standardization (fed labor)	FY21	-	0.21	0.21
Vendor subtotal		**4.01**	**3.03**	**(0.98)**
SNR vendor hardware	FY20	0.38	0.45	0.07
SNR Vendor services	FY20	-	1.67	1.67
SNR fed labor	FY20/FY21	2.53	1.54	(0.99)
SNR contract labor	FY20/FY21	0.27	0.20	(0.07)
SNR Totals		**3.18**	**3.86**	**0.68**
UGP hardware	FY21-FY24	0.49	0.49	-
UGP vendor services	FY21-FY24	-	2.26	2.26
UGP fed labor	FY21-FY24	2.06	2.22	0.16
UGP contract labor	FY21-FY24	1.07	0.20	(0.87)
UGP Totals		**3.62**	**5.17**	**1.55**
DSW/RMR hardware	FY23-FY26	0.62	0.62	-
DSW/RMR vendor services	FY23-FY26	-	2.25	2.25
DSW/RMR fed labor cap	FY23-FY26	2.50	2.07	(0.43)
DSW/RMR contract labor	FY23-FY26	0.30	0.16	(0.14)
DSW/RMR totals		**3.42**	**5.10**	**1.68**

- This is the third year the project is being briefed to WAPA's customers.
- The year one forecast was based on what other utilities told us they paid for their systems
- The year two forecast was based on RFI responses received from six vendors. The year three forecast is based on FY20 actuals and out year planning conversations with the selected vendor.