

Capital Investment Review

Information Technology

April 20, 2012



Questions from March 8th Asset Strategy Presentation

- Slide 3: Is there anything in Energy Secretary Chu's March 16, 2012 Memoranda to PMAs in the area of cyber security, technology and innovation that would cause a shift in the Goals and Objectives of IT as listed in the CIR?
- Slide 5: Is there a summary report that documents the reported savings of \$42M from FY2005-FY2012?
- Slide 7: Page 126 – Please explain the term “service contracts” as used in this document and provide more information regarding the balance of IT support being provided internally vs. being contracted to outside parties, and how this has changed in recent years.
- Slide 9: Page 127 – Please show us the financial analysis that was used by BPA in adopting the strategy of comprehensive fleet replacement.
- Slide 13: We would like to have a discussion of “cloud-based services” and the system candidates for cloud support where costs cannot be capitalized.
- Slide 14: Page 131 Section 11.9 and the inter-relationship between Figures 77, 78, and 79 were difficult to follow in the context of what BPA is actually proposing for the CIR. An additional explanation would be helpful.

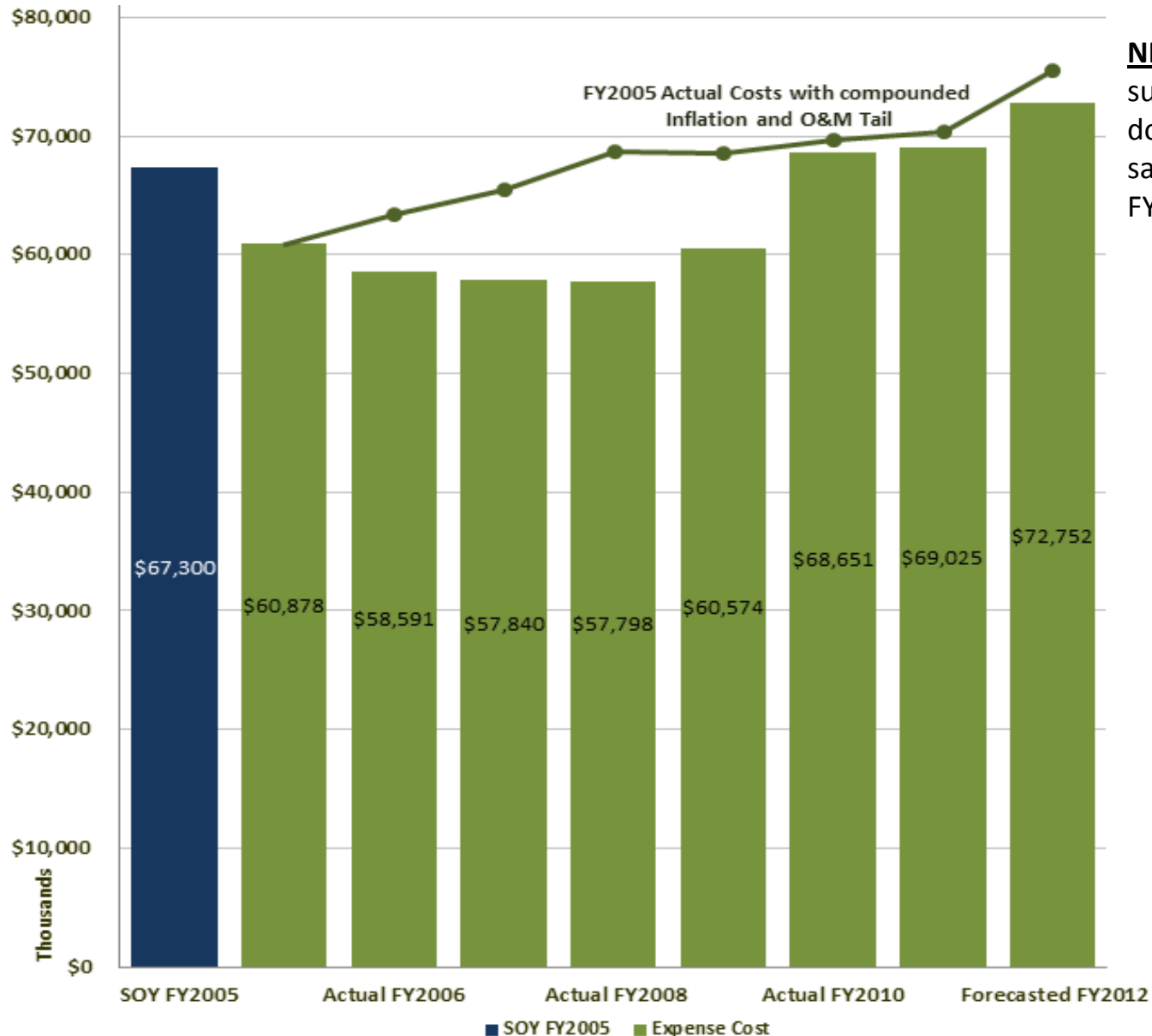
Alignment of Goals and Objectives with Department Guidance

- **NRU Question**: Is there anything in Energy Secretary Chu's March 16, 2012 Memoranda to PMAs in the area of cyber security, technology and innovation that would cause a shift in the Goals and Objectives of IT as listed in the CIR?
- BPA views the IT Asset Strategy and 16 March Memoranda as being aligned and sees no shift in the IT Strategy or Goals and Objectives.
 - The 16 March 2012 Memorandum for Power Marketing Administrators makes the following points concerning technology, innovation, and cyber security:
 - PMA's strategic plans and capital improvement plans
 - Comply with NERC reliability standards
 - Integrate variable resources
 - Schedule on intra-hour basis
 - Minimize cyber security vulnerabilities
 - Capital improvement must be staged to ensure the costs are appropriately managed
 - Three of the IT Goals and Objectives directly aligns with and maps to the points called out in this memo.
 - Many IT projects, recently completed and planned, align with the initiatives called out in the memo.
 - The following table summarizes the alignment between the Secretary's Memorandum IT initiatives and BPA's IT Asset Strategy.

Alignment of Goals and Objectives with Department Guidance (continued)

Memorandum IT Initiatives	IT Goals and Objectives	IT Asset Strategy
Comply with NERC reliability standards	<ul style="list-style-type: none"> Securely maintain and operate assets in accordance with federal and industry regulations and laws. 	<ul style="list-style-type: none"> IT has fielded and continues to maintain systems to comply with NERC CIP regulations (e.g. ProWatch). IT Asset Strategy identifies the need to plan for NERC CIP v5 requirements .
Integrate variable resources	<ul style="list-style-type: none"> Become a strategic partner, advising and assisting business units in leveraging technology to meet and achieve their objectives. 	<ul style="list-style-type: none"> BPA systems supports the integration of wind power. BPA is engaged in demand response and Smart Grid pilots.
Schedule on intra-hour basis	<ul style="list-style-type: none"> Become a strategic partner, advising and assisting business units in leveraging technology to meet and achieve their objectives. 	<ul style="list-style-type: none"> BPA marketing systems have been modified to accommodate intra- hourly scheduling.
Minimize cyber security vulnerabilities	<ul style="list-style-type: none"> Securely maintain and operate assets in accordance with federal and industry regulations and laws. Enable the agency to reliably and securely use IT resources to effectively and efficiently perform work while maximizing use of IT resources. 	<ul style="list-style-type: none"> BPA partners with external agencies to conduct assessments and perform penetration testing. BPA maintains a program to identify and address security deficiencies. BPA’s proposed IPR budget includes resources to establish a 24x7 Security operation Center.

Summary of IT Expense Savings from FY2005 through FY2011



NRU Question: Is there a summary report that documents the reported savings of \$42M from FY2005-FY2012?

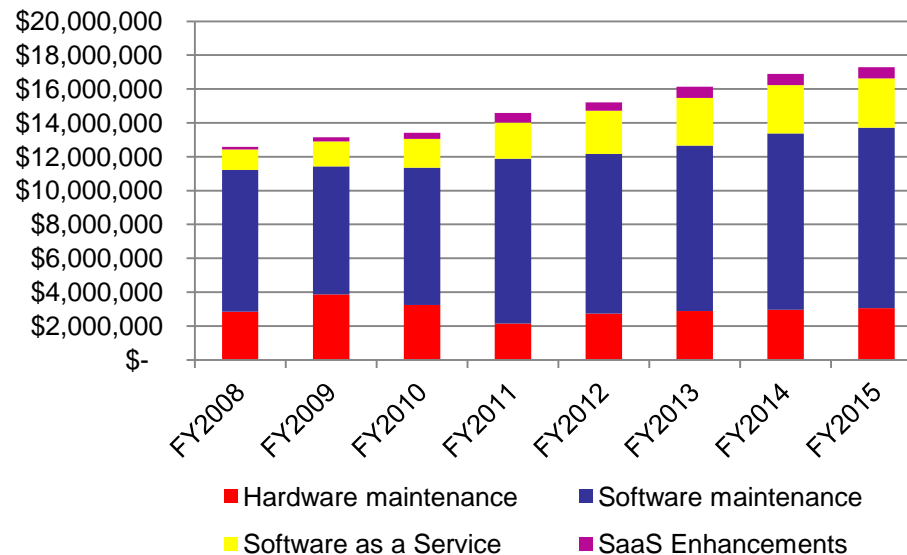
Summary of Expense Savings from FY2005 through FY2011

	Actual FY2005	Actual FY2006	Actual FY2007	Actual FY2008	Actual FY2009	Actual FY2010	Actual FY2011
Inflation	3.39%	3.24%	2.85%	3.85%	-0.34%	0.83%	1.16%
O&MTail	\$2,523,421	\$457,620	\$248,535	\$754,302	\$0	\$535,763	\$0
Actual Inflation	\$60,878,165	\$62,850,618	\$64,641,860	\$67,130,572	\$66,902,328	\$67,457,617	\$68,240,125
Actual O&MTail	\$60,878,165	\$61,335,785	\$61,584,320	\$62,338,622	\$62,338,622	\$62,874,385	\$62,874,385
Actual Inflation & O&MTail	\$60,878,165	\$63,323,064	\$65,383,390	\$68,683,993	\$68,450,468	\$69,558,816	\$70,365,699
Expense Cost	\$60,878,165	\$58,590,569	\$57,840,381	\$57,798,474	\$60,574,453	\$68,650,687	\$69,024,523
Savings	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Actual Annual	\$0	\$4,732,495	\$7,543,009	\$10,885,519	\$7,876,015	\$908,129	\$1,341,176
Actual Cumulative	\$0	\$4,732,495	\$12,275,504	\$23,161,024	\$31,037,038	\$31,945,167	\$33,286,343

- Savings are calculated as the difference between each year’s actual and FY2005 Actual with compounded inflation plus O&M Tail. O&M Tail includes new software maintenance contracts from delivering new systems into production.
- Table of Savings does not include:
 - \$6.4M savings achieved in FY2005; Difference from SOY2005 and EOY2005 (\$67.3M-60.9M = \$6.4M) from
 - Consolidation and elimination of duplicative services,
 - Reduction in contractor support, and
 - Elimination of unnecessary/low value service contracts
 - Projected savings in FY2012.
- Total savings is the sum of FY2005 savings (\$6.4M), \$33.3M as calculated from the table and the projected savings in FY2012.

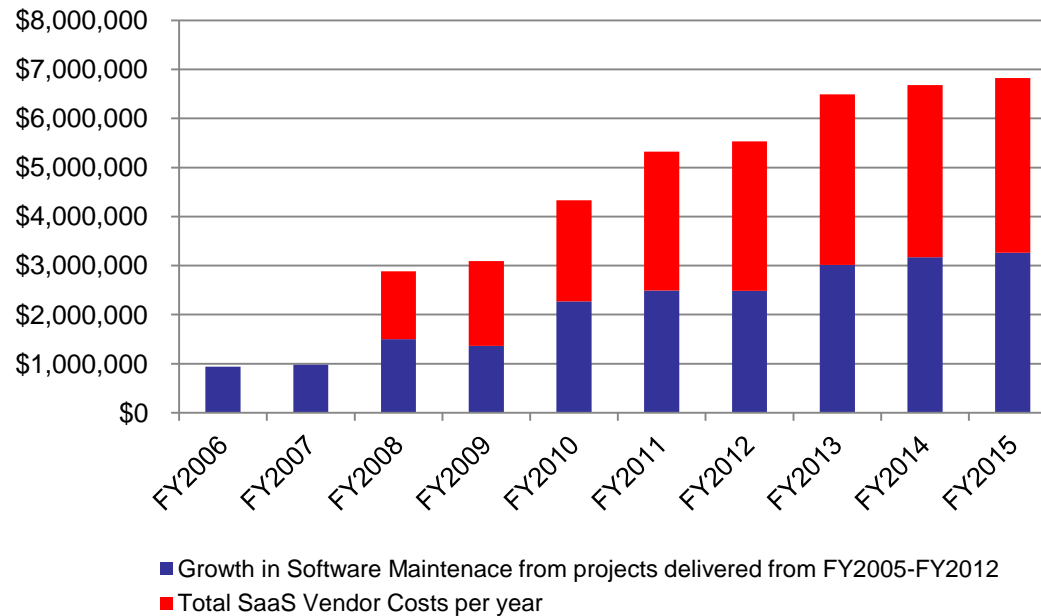
Service Contracts

- **NRU Question**: Page 126 – Please explain the term “service contracts” as used in this document and provide more information regarding the balance of IT support being provided internally vs. being contracted to outside parties, and how this has changed in recent years.
- Service Contract is a general term referring to annual expense contracts that include:
 - Software Maintenance (referred to as O&M contracts in Figure 73, page 126)
 - Software Services (Software as a Service – SaaS)
 - Hardware Maintenance support contracts



Service Contracts

- Two factors have contributed to the majority of the increases in service contracts:
 - Software Maintenance associated with new systems delivered annually
 - Software Services



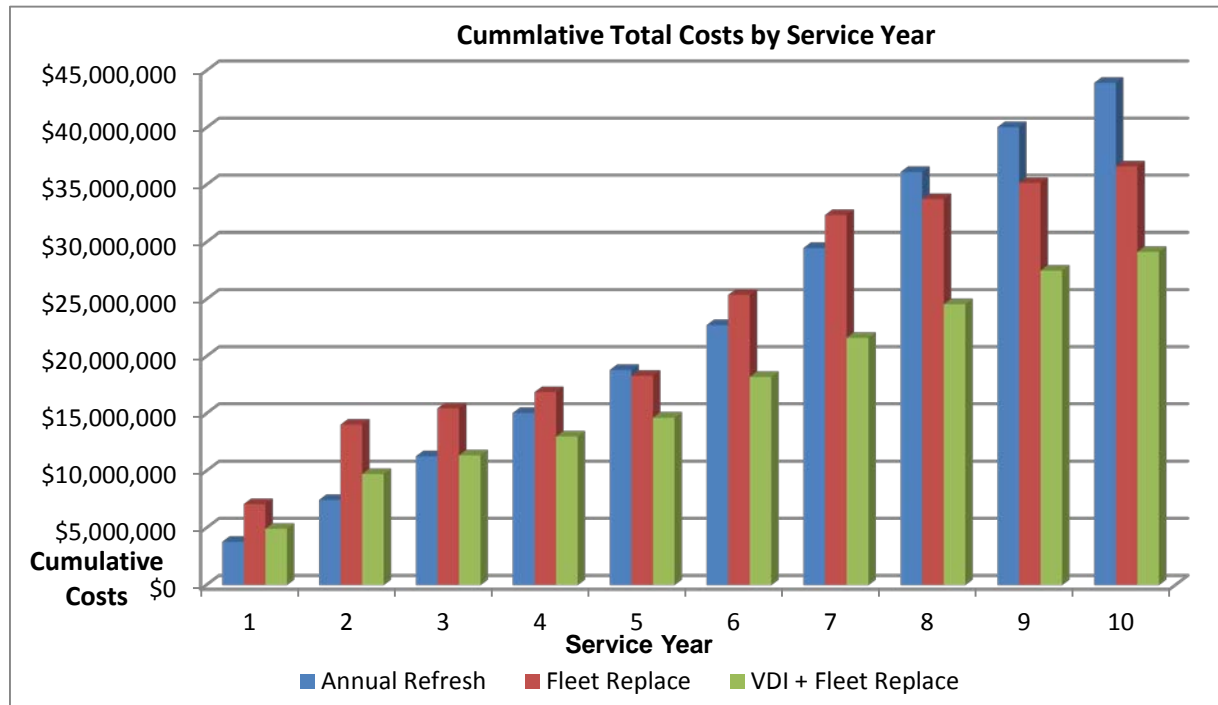
Adoption of Fleet Replacement Strategy

- In 2008, BPA examined alternatives to lower BPA's cost of ownership of its personal computing devices. The result of this analysis showed that over ten years (2 five year refresh cycles) that BPA could achieve a significant savings by adopting a fleet replacement strategy – completely replacing the fleet every five years.
- Reviews and updates of our strategies are conducted every few years or as new events, information, or emerging technologies warrant.
- In 2010, a review of our desktop strategy indicated that implementing a virtual desk top (VDI) environment (including thin/zero clients and application streaming) would result in savings above and beyond a simple fleet refresh. However, BPA faced a number of open questions:
 - Degree of penetration BPA could achieve with thin clients (What percentage of desktops could be converted to thin clients?)
 - Stability and performance of a VDI environment (Would a VDI environment be reliable?)
 - Total cost of ownership in operating both desktop and datacenter components of VDI environment (Will VDI be cost effective?)

Adoption of Fleet Replacement Strategy cont'd

- BPA initiated a VDI pilot in the latter part of 2010 to answer these questions, using the results to inform and update our refresh and replacement strategy.
- BPA's current updated office automation strategy includes a cost analysis of the following three scenarios:
 - 20% annual refresh of personal computing fleet
 - Fleet replacement every five years
 - 75% VDI environment with fleet replacement of remaining 25% personal computing devices
- The cost analysis of these scenarios is intended to compare the major cost drivers and relevant costs between the scenarios to identify the best value for BPA (the analysis is not meant to be a precise cost estimation).

Adoption of Office Automation Fleet Replacement Strategy



- Costs include hardware, software, and labor to establish and maintain environments.
- Details of costs analysis will be included in the appendices of the updated draft of the IT Asset Strategy (prior to the strategy being finalized in September of 2012).
- Based on the relative costs between the three scenarios, BPA has determined that a VDI + Fleet replacement scenario provides the best value to BPA.
- BPA is in the process of establishing and transitioning to a VDI environment.

Adoption of Office Automation Fleet Replacement Strategy (Data used to create graphs of relative costs)

	Year										
	1	2	3	4	5	6	7	8	9	10	
20% Annual Refresh	1100										
Hardware Purchase											Total
Labtop	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$319,000	\$3,190,000
Workstation	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$998,800	\$9,988,000
Labor - Refresh	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$1,100,000	\$11,000,000
Disposal	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$110,000
Baseline/Image Management											\$0
Create Image - O/S	\$125,000						\$125,000				\$250,000
Modify Image (new Model)			\$50,000			\$50,000			\$50,000		\$150,000
maintain image	\$25,000	\$25,000	\$50,000	\$50,000	\$50,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$575,000
Deploy New O/S							\$1,650,000	\$1,650,000			\$3,300,000
Deploy new Office suite							\$1,100,000	\$1,100,000			\$2,200,000
Deploying new Software	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$8,800,000
Patching	\$330,000	\$330,000	\$412,500	\$412,500	\$412,500	\$495,000	\$495,000	\$495,000	\$495,000	\$495,000	\$4,372,500
Break/Fix	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Yearly Total	\$3,788,800	\$3,663,800	\$3,821,300	\$3,771,300	\$3,771,300	\$3,928,800	\$6,753,800	\$6,628,800	\$3,928,800	\$3,878,800	\$43,935,500
Cumulative Total	\$3,788,800	\$7,452,600	\$11,273,900	\$15,045,200	\$18,816,500	\$22,745,300	\$29,499,100	\$36,127,900	\$40,056,700	\$43,935,500	
Fleet Replacement											
Hardware Purchase											
Labtop	\$717,750	\$717,750				\$717,750	\$717,750				\$2,871,000
Workstation	\$2,247,300	\$2,247,300				\$2,247,300	\$2,247,300				\$8,989,200
Labor - Refresh	\$2,750,000	\$2,750,000				\$2,750,000	\$2,750,000				\$11,000,000
Disposal	\$27,500	\$27,500				\$27,500	\$27,500				\$110,000
Baseline/Image Management											\$0
Create Image - O/S	\$125,000					\$125,000					\$250,000
Modify Image (new Model)											\$0
maintain image	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$125,000
Deploy New O/S											\$0
Deploy new Office suite											\$0
Deploying new Software	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$8,800,000
Patching	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$330,000	\$3,300,000
Break/Fix			\$175,780	\$193,358	\$210,936			\$175,780	\$193,358	\$210,936	\$1,160,148
Yearly Total	\$7,090,050	\$6,965,050	\$1,398,280	\$1,415,858	\$1,433,436	\$7,090,050	\$6,965,050	\$1,398,280	\$1,415,858	\$1,433,436	\$36,605,348
Cumulative Total	\$7,090,050	\$14,055,100	\$15,453,380	\$16,869,238	\$18,302,674	\$25,392,724	\$32,357,774	\$33,756,054	\$35,171,912	\$36,605,348	

Adoption of Office Automation Fleet Replacement Strategy (Data used to create graphs of relative costs)

	1	2	3	4	5	6	7	8	9	10	
VDI + Fleet Replacement											
Hardware Purchase											
Laptop	\$598,125	\$598,125				\$598,125	\$598,125				\$2,392,500
Workstation	\$312,125	\$312,125				\$312,125	\$312,125				\$1,248,500
thin client	\$660,000	\$660,000						\$660,000	\$660,000		\$2,640,000
clam shell	\$464,063	\$464,063						\$464,063	\$464,063		\$1,856,250
VDI Environment	\$900,000	\$900,000	\$720,000	\$720,000	\$720,000	\$900,000	\$900,000	\$720,000	\$720,000	\$720,000	\$7,920,000
Labor - Refresh	\$935,000	\$935,000				\$687,500	\$687,500	\$123,750.0	\$123,750.0		\$3,492,500
Disposal	\$34,375	\$34,375				\$34,375	\$34,375	\$49,500	\$49,500		\$236,500
Baseline/Image Management											\$0
Create Image - O/S	\$125,000					\$125,000					\$250,000
Modify Image (new Model)	0	0	0	0	0	0	0	0	0	0	\$0
maintain image	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$12,500	\$125,000
Deploy New O/S	0	0	0	0	0	0	0	0	0	0	\$0
Deploy new Office suite	0	0	0	0	0	0	0	0	0	0	\$0
Deploying new Software	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$4,400,000
Patching	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$4,400,000
Break Fix			\$32,337	\$32,337	\$32,337			\$32,337	\$32,337	\$32,337	\$194,024
Yearly Total	\$4,921,188	\$4,796,188	\$1,644,837	\$1,644,837	\$1,644,837	\$3,549,625	\$3,424,625	\$2,942,150	\$2,942,150	\$1,644,837	\$29,155,274
Cumulative Total	\$4,921,188	\$9,717,375	\$11,362,212	\$13,007,050	\$14,651,887	\$18,201,512	\$21,626,137	\$24,568,287	\$27,510,436	\$29,155,274	

Cloud Based Services

- **NRU Question**: We would like to have a discussion of “cloud-based services” and the system candidates for cloud support where costs cannot be capitalized.
- Under BPA’s capitalization rules, IT cannot not capitalize services as they do not result in assets owned by BPA.
- The Federal government is urging a cloud first approach to reduce federal IT costs.
- BPA has drafted a cloud adoption strategy which includes:
 - Adopting cloud based services based on the value and benefits delivered to BPA
 - Alignment with BPA’s vision and objectives
- BPA currently subscribes to approximately 12 hosted and Software as a Service solutions. These services may be operationally and economically preferable to software applications that BPA develops or acquires, but their costs can’t be capitalized.
- SaaS tends to “lock in” expense requirements and reduces ITs flexibility in allocating and executing its expense funds.

Capital and Expense Resource Requirements

- **NRU Question:** Page 131 Section 11.9 and the inter-relationship between Figures 77, 78, and 79 were difficult to follow in the context of what BPA is actually proposing for the CIR. An additional explanation would be helpful.
- Figure 79 is a table of the 2010 forecasted IT expense and capital resource requirements.
 - This table was included for historical context and
 - As an aid in comparing with the updated funding resource requirement which has IT adjusting and shaping its expense and capital resources requirements from year to year.
- Figure 77 shows the IT capital resource forecast by asset category.
- Figure 78 shows both
 - IT expense requirements by asset category (Office Automation, Networks, Datacenter, and Applications) and other major IT expense centers (projects, governance, cyber security etc.)
 - The second part of figure 78 shows the total combined expense and capital forecasted IT requirements.
- The intent is to show that although the resource requirements fluctuates from year to year, with IT requiring more expense and less capital than the 2010 forecast.
- The key point is that while the combined accumulative 2012 IPR expense and capital forecast is 2.6% higher than the FY2010 forecast over the FY2011-FY2021 time period, the anticipated need for capital and expenses levels changed significantly year by year from the IPR 2010 forecast.