



01 / 13 / 2014

Information Technology | Estimation Program Office, Dwayne M. Ross, Sr.

**Require all Form 990 Series Tax and Information Returns
be Filed Electronically
Vision and Strategy Phase Estimate
Basis of Estimate Report, Version 1.1**

**Government
Exhibit**

105

Contents

1	Introduction	4
1.1	Purpose	4
1.2	Relationship to Previous Estimates.....	4
1.3	Summary Results	4
2	Key Project Information	6
2.1	Related Documents	6
2.2	Estimate Contributors	7
3	Estimation Methodology	7
4	Project Scope and Business Capabilities	8
4.1	Included Scope.....	8
4.2	Excluded Scope.....	8
5	Solution Characteristics	8
6	Assumptions for Estimation	9
6.1	Global Assumptions.....	9
6.2	Software Application Development	10
6.3	Project Infrastructure	12
6.4	Business Operating Division (BOD) Support (non-IT Costs)	13
6.5	Deployment Services.....	13
7	Issues and Risks	14
8	Management Reviews	14
9	Appendix A – Standard Ground Rules and Assumptions (GR&As) for Estimation	15
10	Appendix B – Software Size and Development Attributes	21
11	Appendix E – Acronyms	23

List of Tables

Table 1-1. ELC Phases and Categories of Cost Included in the Estimate 4

Table 1-2. Five Year Investment Summary Report 5

Table 1-3. Highest Cost Components 5

Table 1-4. Projected Schedule 6

Table 1-5. Projected Staffing 6

Table 2-1. Estimate Contributors 7

Table 5-1. Planned Infrastructure Investments 9

Table 6-1. Software Engineering Project Support 11

Table 6-2. Data Engineering Project Support 12

Table 6-3. AD Non-Developer Project Support Level of Effort 12

Table 12-1. Assumptions for % In-House Labor for DP Organizations 15

Table 12-2. IRS and Contractor IT Labor Rates by Functional Area 17

Table 12-3. Composite IRS and Contractor Labor Rates for Services and Enforcement 18

Table 12-4. Inflation Indices and Rates 20

Table 13-1. Software EBS Component Sizes and Attributes 21

Table 13-2. Default Parameter Overrides 21

1 Introduction

1.1 Purpose

This estimate provides a structured accounting of all Information Technology (IT) resources and associated costs required to complete the development and deployment of the FY2014 legislative proposal that would require all Form 990 Series Tax and Information Returns be filed electronically. A general explanation of the Administration’s FY 2014 Revenue proposals is available in the “Green Book” at: <http://www.treasury.gov/resource-center/tax-policy/Documents/General-Explanations-FY2014.pdf> under the title “Make e-Filing Mandatory for Exempt Organizations”. The legislation would require all tax-exempt organizations that must file Form 990 series returns to file them electronically. The proposal would also require the IRS to make the electronically filed Form 990 series returns publicly available in a machine readable format in a timely manner, as provided in regulations.

This estimate reflects the information that is available during the Vision & Strategy phase of the IRS Enterprise Life Cycle (ELC) and includes costs for the lifecycle phases, cost categories, and cost types noted in Table 1-1.

Table 1-1. ELC Phases and Categories of Cost Included in the Estimate

ELC Phases		Cost Categories		Cost Types	
x	Project Initiation	x	Application Software Development	x	IRS Labor
x	Domain Architecture	x	Infrastructure Environments	x	Capital Costs
x	Preliminary Design	x	Deployment Services		
x	Detailed Design	x	BOD Support (non-IT costs)		
x	System Development		Program Management Office		
x	System Deployment				
x	Operation and Maintenance				

This estimate was prepared to support the development of a FY2014 legislative proposal. The estimate was requested by Bridget Forcier from the Chief Financial Officer (CFO), Corporate Budget, Budget Formulation Office and was included as part of a group of new legislative proposals that were added by Treasury Tax Policy in the FY 2014 President’s Budget. Tax Exempt and Government Entities Submission Processing (TEGE/SP) are the business sponsors for the proposal. This estimate includes IT costs to design, build, deploy and operate the system and Business Operating Division (BOD) support costs to support development activities.

1.2 Relationship to Previous Estimates

No previous estimate was developed for this proposal.

1.3 Summary Results

Tables below provide the following information:

1. Table 1-2 shows the cost by fiscal year for Make e-Filing Mandatory for Exempt Organizations for a five-year investment period beginning with the base year of 2015. The 2015 costs for the projects are supporting pre-MS2 activities.
2. Table 1-3 summarizes the largest cost components in the project estimate. The Estimate Breakdown Structure (EBS) Identifier (ID) refers to the component number within the EBS Report that is included in the Investment Summary Report (ISR) Extract described later in this section. The listed components account for \$10.68 out of the \$14.3 total Non-Recurring (NR) cost of the project.
- 3.

4. Table 1-4 shows the project's projected schedule. The estimate uses a project start date of 10/1/2015.
5. Table 1-5 summarizes project staffing. The labor costs include BOD (non-IT) support needed to support the development of Make e-Filing Mandatory for Exempt Organizations.

Table 1-2. Five Year Investment Summary Report

Five Year Investment Summary		Investment Summary Report						
Form 990 efile		Capital	IRS Labor	2015	2016	2017	2018	2019
December 15, 2013								
Non-recurring								
Non-recurring BOD Capital		147,000		117,000	30,000	0	0	0
Non-recurring BOD Labor			1,321,000	820,000	501,000	0	0	0
Total BOD Non-recurring		1,468,000		937,000	531,000	0	0	0
Non-recurring IT Capital		9,511,000		6,167,000	3,344,000	0	0	0
Non-recurring IT Labor			3,288,000	2,236,000	1,052,000	0	0	0
Total IT Non-recurring		12,800,000		8,403,000	4,397,000	0	0	0
Total Non-recurring		14,267,000		9,339,000	4,928,000	0	0	0
Recurring (O&M)								
Recurring BOD Capital		0		0	0	0	0	0
Recurring BOD Labor			425,000	0	50,000	126,000	126,000	123,000
Total BOD Recurring (O&M)		425,000		0	50,000	126,000	126,000	123,000
Recurring IT Capital		3,056,000		0	420,000	884,000	884,000	867,000
Recurring IT Labor			1,692,000	0	199,000	501,000	501,000	490,000
Total IT Recurring (O&M)		4,747,000		0	619,000	1,386,000	1,386,000	1,357,000
Total Recurring (O&M)		5,172,000		0	669,000	1,511,000	1,511,000	1,481,000
BOD Five Year Investment		147,000	1,746,000	937,000	581,000	126,000	126,000	123,000
IT Five Year Investment		12,567,000	4,980,000	8,403,000	5,016,000	1,386,000	1,386,000	1,357,000
Total Five Year Investment		\$19,439,000		9,339,000	5,597,000	1,511,000	1,511,000	1,481,000
Inflation Adjusted								
Capital		12,903,000		6,284,000	3,855,000	913,000	927,000	924,000
IRS Labor			6,830,000	3,056,000	1,827,000	645,000	654,000	648,000
Total Investment Inflation Adj.		\$19,733,000		9,340,000	5,682,000	1,558,000	1,581,000	1,572,000

Table 1-3. Highest Cost Components

EBS ID	Description	Cost (\$)
1.1.1.2.1.1	MeF new Form Enhancement - (1 new Forms)	\$4.3M
1.1.1.2.1.4	Website for the machine readable data (ICCE)	\$2.0M
1.1.4.1	SAT (25% of S/W Development) (A)	\$1.5M
1.3.1.3	BOD SME Support - 1 / 3 / 5 FTE LOE (A)	\$818K
1.1.2.3	Plan/Requirements - EA (A)	\$705K
1.2.1	Network Augmentation	\$497K
1.1.6	Security Activities - New System - Moderate Risk	\$436K
1.1.2.1	Plan/Requirements - SE (A)	\$423K

Total: \$10.68M

Table 1-4. Projected Schedule

Lifecycle Phase	Start Date	Phase Duration (Months)	MS Exit Date	
Project Initiation and Domain Architecture	10/1/14	6	MS1/2	03/25/2015
Preliminary Design		3	MS3	07/06/2015
Detailed Design		2	MS4a	09/05/2015
System Development		4	MS4b	01/12/2016
System Deployment		4	MS5	05/08/2016

Table 1-5. Projected Staffing

	FY2015	FY2016	Total
IRS FTE	14.8	7.4	22.3
Contractor	21.8	12.8	34.5
Total	36.6	20.2	56.8

Detailed cost reports for this estimate are contained in an Investment Summary Report (ISR) extract *Form 990 efile ISR Extract (2013-12-06) revised 1.3*.

The ISR Extract provides a breakdown of the estimate's results into formats suitable for resource planning. While a project cost estimate is used to inform budget formulation, it is critical to note that this independent cost estimate report is neither an indication of Treasury's future funding requests nor a procurement commitment. Furthermore, for any particular fiscal year, actual budget formulation can appropriately be either higher or lower than the project cost estimate. There are several factors that will cause this difference to occur. While the estimate predicts future funding expenditures and disbursements, budget formulation focuses on the funding commitment and obligation process to ensure that sufficient funds are available during project execution.

Unless otherwise noted, reports are provided on five tabs of the extract:

1. **ISR** – Cost breakdown by fiscal year, for the project as a whole and for each Delivery Partner (DP)
2. **DP Summary** – Cost breakdown by DP.
3. **DP by FY** – Shows total cost Full Time Equivalent (FTE) staff by DP. The Above Unit Cost Rate (UCR) costs shown in the report includes contractor labor and materials (purchased hardware, purchased software, site preparation, training and travel).
4. **Labor Charts** – IRS and Contractor FTEs for up to 5 FYs, for the project as a whole and for each DP
5. **EBS Report** - Product-oriented Estimate Breakdown Structure
6. **DP Milestone** – Cost breakdown by ELC phase and DP
7. **JV** – Journal Voucher

2 Key Project Information

2.1 Related Documents

The development cost to e-File the Form 990-T was derived from a previous estimate that was completed in FY2007. The prior estimate is documented in the following document:

1. Form 990 Revision Cost Analysis 8 26 06 (2006-12-05)

2.2 Estimate Contributors

Participants who substantially contributed to this estimate appear in Table 2-1.

Table 2-1. Estimate Contributors

Organization	Contact Names
EPO	Dwayne M. Ross, Sr.
Solution Engineering	Lini Wu, Jeffery Jones
AD	Richard Rode, Andre Springer (MeF)
TE/GE	JaLynne Archibald, Robert Noonan

3 Estimation Methodology

The estimator developed this estimate following the activities and steps defined in the IT Estimation Procedure. The “Perform Estimation” activity within the procedure relied on two commercial estimation tools: SEER for Software® and SEER for IT®. Estimation consisted of the following major steps:

2. **Refine Scope and Solution** – Representatives from across TE/GE, W&I, SE, IPS, and AD discuss necessary business and IT changes to refine the proposal’s scope and solution. Although the Green Book would require all Form 990 series returns to be filed electronically, TE/GE refined the solution to require only the new form 990-T to be e-Filed. Form 990-BL was excluded from the scope due to its low volume and Form 990-W was excluded from estimate because it is a worksheet and is not required to be filed.
3. **Developed the EBS** – The estimator tailored the IRS IT standard EBS for the proposal to make e-Filing mandatory for exempt organizations. The EBS is a product-oriented outline that maps elements of the estimate to the components of the design. All EBS elements are grouped into one of the following categories: Application Development, Project Infrastructure, BOD Support, and Deployment Services.
4. **Estimated EBS Component Costs** – The estimator used a combination of techniques to estimate EBS components including parametric modeling, analogy, application of cost estimating relationships, and utilization of pre-defined costs from service provider catalogs. Section 6, Assumptions for Estimation, document baseline assumptions for EBS element from which the estimate was built.
5. **Apply Factors and Rates** – The estimator added other aspects of the project such as IRS/contractor labor mix and labor rates to develop a complete cost and schedule estimate.
6. **Generated reports** – The estimator used the Investment Summary Report tool to create reports in a variety of formats for the various users of the estimate.

This methodology relies on what is documented and what can be reasonably assumed at this time. Estimated costs are expected to change as the project enters the life cycle and the more detailed requirements and system specifications are developed.

4 Project Scope and Business Capabilities

4.1 Included Scope

The proposal would require all tax-exempt organizations that must file Form 990 series returns to file them electronically. Forms 990, 990-EZ and 990-PF are currently being e-filed through MeF. Solution would require the new form 990-T to be e-Filed. The proposal would also require the IRS to make the electronically filed Form 990 series returns publicly available in a machine readable format in a timely manner, as provided in regulations.

The proposal would generally be effective for taxable years beginning after the date of enhancement. Transition relief would allow up to three additional years to begin electronic filing for smaller organizations and organizations for which electronic filing would be an undue hardship without additional transition time. In addition, the proposal would give the IRS discretion to delay the effective date for Form 990-T filers for up to three taxable years. Capabilities that are included in scope of this estimate include:

1. Ability to e-file form 990-T. Forms 990, 990-EZ and 990-PF are currently being e-filed through MeF.
2. New process to filter the filed 990-T series form to redact individual Personally Identifiable information (PII) and store it in a publicly accessible location.
3. Development of a new public user interface for accessing machine readable 990 series forms.

4.2 Excluded Scope

The following significant scope elements have been excluded from this estimate:

1. Ability to e-file Form 990-BL due to its low volume.
2. Ability to e-file Form 990-W because it is a worksheet and is not required to be filed.

5 Solution Characteristics

The solution will require new functionality and enhancements to the following systems:

1. Modernized e-File (MeF) will be enhanced to receive and process Form 990-T using standardized business rules and requirements across form type. MeF provides for real time processing of acknowledgements, streamlined error detection, capability to attach PDF files, and capability for IRS employees to view MeF return data through the Employee User Portal (EUP) and also the Business Objects Server.
2. Tax Return Database (TRDB) is the legal repository for electronically filed tax forms. TRDB will require modification to receive the electronically filed Form 990-T from MeF.
3. Business Master File (BMF) Mainline Processing will be modified to support the pre-posting, posting, analysis, and output of business account transactions using the information on the electronically filed 990-T form.
4. Integrated Customer Communications Environment Management Information System (ICCE MIS) will be modified to extract Form 990 series forms from TRDB, transform the forms by filtering the filed 990 series forms to redact individual Personally Identifiable information (PII) and load the forms on the web. ICCE will also provide a user interface for public users to access the filtered machine readable 990 series forms.

5. Purchased hardware, licenses, and storage needed for development, testing, production and disaster recovery environments appear in Table 5-1. The infrastructure cost reflects the assumption that there will be some network augmentation to handle the increased volume of e-Filed 990-T forms.

Table 5-1. Planned Infrastructure Investments

Environment	Purchased Materials
Network Augmentation	Telecom Build Out - Medium
Portal	IEP Integration – Small (Pending Accenture’s Refinement)
Production	1 TB SAN Storage
Disaster Recovery	1 TB SAN Storage

6 Assumptions for Estimation

Estimates are usually based on limited information and so need to be bound by the constraints that make estimating possible. These constraints bind the estimate’s scope, effort, cost, schedule, staffing, and quality, and are accounted for using assumptions. These assumptions document baseline conditions from which the estimate was built.

In some cases, assumptions reference criteria that were used to select predefined elements contained in cost catalogs. Cost catalogs contain predefined labor hours, labor mix, and material costs for different scope size classifications (e.g., Small, Medium, Large and Extra Large) for IT services. EPO currently maintains cost catalogs that were jointly developed by EPO and DPs who provide these services. The catalogs are primarily used in the development of estimates during the Vision and Strategy phase to provide placeholder costs for IT services and materials that will likely be needed. The criteria, categories and associated labor hours or material costs were derived from the experience of the DPs.

6.1 Global Assumptions

1. **Project Initiation Date** – 10/1/2015. The project initiation date defines the base fiscal year for all reported costs; i.e., if a project is initiated in FY 2015, all costs are reported in base year FY 2015 dollars, with the exception of the Investment Summary Report which shows inflation-adjusted costs.
2. **Schedule** – The following assumptions pertain to the overall project schedule:
 - a. The design and development phases were estimated using the SEER for Software parametric model which was applied to estimate the effort to Extract, Transform and Load (ETL) Form 990 series data that is stored in TRDB and load the data into a publicly-accessible location. The schedule for pre-MS2 (i.e., Project Initiation and Domain Architecture ELC phases) and Deployment phases were estimated as a percentage of the Design and Development based on the 30:50:20 guideline whereby the pre-MS2 schedule duration is set equal to 60% of the Design and Development schedule duration and the System Deployment schedule duration is set equal to 40% of the Design and Development schedule duration. The overall result is that pre-MS2 is 30%, Design and Development 50% and Deployment 20% of total schedule duration. This guidance was developed by EPO based on a review of ELC Milestone Exit review dates for 19 completed projects and is documented in the EPO white paper, “Guidelines for Estimating Project Schedule.
 - b. If the estimate is for a subsequent release of a Current Production Environment (CPE) system to provide a new service that is consistent with other services that the system already supports, it is assumed that the project will commence work beginning with preliminary design; pre-MS2 activities should be excluded from the estimate (Source: EPO White Paper “Guidelines for Estimating Project Schedule”). Pre-MS2 activities were included this estimate.
3. **Staffing Constraints** – No staffing constraints.

4. **Pre-MS2 Effort** – Pre-MS2 IT effort is estimated as 23% of IT design and development effort based on a review of actual effort IT effort on the IRDM R1 project. Costs are allocated to DPs as 30% to Solution Engineering (SE), 20% to Requirements and Demand Management (RADM) and 50% to Enterprise Architecture (EA).
5. **Global assumptions** – Productive hours per month, percentage of in-house labor for DP organizations, probability of completion within budget and schedule, labor rates, inflation adjustment, and Operation and Maintenance (O&M) phase duration appear in Appendix A.
6. **AD/BOD/PMO Supplies** – Costs for miscellaneous supplies are estimated at \$160 per FTE per year for AD, BOD, and PMO.

6.2 Software Application Development

1. **Core Functionality** – The estimator used a combination of techniques to estimate EBS components for software development including parametric modeling and analogy,
 - a. MeF enhancements were estimated using a prior estimate for Form 990 Revision. The estimated cost of \$4.3M to e-File Form was based on the \$4.4M in IBM Development Costs shown in Table 6-1. The prior estimate used a base year of 2007 so the cost was adjusted for inflation using a 2% inflation factor. Infrastructure support, government costs, and risk reserve costs are included elsewhere in the estimate. IBM New Functions were assumed not to be needed. Contractor and Project overhead are excluded from this estimate.

Table 6-1. Form 990 Revision Estimate Summary (Source: Form 990 Revision Cost Analysis 8 26 06 (2006-12-05))

	Existing 990	990 Revision	Median
IBM Development Costs	4.406	7.248	5.827
IBM Infrastructure Support	0.661	1.087	0.874
IBM New Functions and Fed/State	0.507	0.833	0.670
<i>Subtotal IBM:</i>	<i>5.573</i>	<i>9.168</i>	<i>7.371</i>
Infrastructure	0.593	1.187	0.890
Contract & Project Overhead	5.927	5.927	5.927
Total Dev & Integration Costs	12.094	16.282	14.188
Gov't Costs (30%)	3.628	4.885	4.256
Risk Reserve (15%)	1.814	2.442	2.128
Total Estimated Costs	17.536	23.609	20.572

- b. ICCE costs were estimated through a combination of analogy and parametric modeling.
 - The effort to extract 990 data, transform it to redact personal information, and store the redacted 990 files in a publicly accessible repository was sized using the function point methodology. The application was sized as 9 function points (3 External Inputs, 3 External Outputs and 3 Internal Logical Files). The estimated size was entered into SEER for Software. The model parameters are described in Section xx.
 - The user interface to access 990 series forms was estimated to cost \$2M based on input from On-Line Services. The cost was compared with the estimated effort for Get Transcript which had an estimated development cost of \$259k.

BMF and TRDB enhancements were estimated using the CPE cost catalog.

2. **CPE System Enhancements** – The estimator selected predefined elements from the EPO CPE cost catalogs as placeholders for development efforts.

- a. CPE system enhancement placeholders are defined as the following categories:
 - Small – Current user of the system requests an existing service that the external system already provides to other users under a standard interface protocol.
 - Medium – New user of the system requests an existing service that the external system already provided to other users under a standard interface protocol or and existing user of the system requests a new type of service that is consistent with other services that the system already supports but requires some effort to transform the data into the requested format.
 - Large – New user of the system requests a new type of service that is consistent with other services that the system already supports but requires some effort to transform the data into the requested format.
 - Extra Large – User requests a new type of service that requires some customization by the external system and their need to test new or enhanced processing logic.
 - b. Using these definitions, CPE System Enhancements were estimated for the following systems:
 - BMF Modifications Enhancement = Medium/Large
 - TRDB Enhancement = Large
3. **EST Effort** – Guidance from the EST organization is to estimate the effort for Systems Acceptability Testing (SAT) at 25% of the developed software. This test effort is beyond the typical testing effort in the SEER for Software cost model and is listed as a separate element in the EBS. In addition, Performance Testing effort is estimated at 10% of the developed software effort.
4. **Software Engineering Project Support** – The Software Engineering practice area within SE supports the development of the application architecture technical solution, which is documented in the Business Systems Architecture Report (BSAR) and Design Specification Report (DSR). The estimator selected the Bronze category of effort from predefined categories of support as a placeholder for engineering services that may be required for this project. The Bronze level of service is primarily documentation review; the other levels involve direct participation of SE in the project. The service levels were jointly developed by EPO and SE and determined from a review of support that the organization has provided for several projects. For the Gold and Silver levels, the project size criteria are as follows:
- Medium applies in most cases, and typically represents a project adding significant new functionality to an existing system.
 - Small applies to a project for a minor enhancement of an existing system.
 - Large applies to a project implementing a new system, or changes to a complex system (multiple subsystems or many interfaces with external systems).

Table 6-2. Software Engineering Project Support

Type	Effort (Least / Likely / Most)	Analogous Projects
None		CPE Enhancements
Bronze	80-120 hours	Solution Engineering planning
Silver - S / M / L	Half of Gold level	Solution Engineering planning
Gold - Small	0.1 / 0.5 / 1.0 FTE	ACA BPD, SCRIPS, ACA IFSV
Gold - Medium	1.0 / 1.5 / 2.5 FTE	BDA
Gold - Large	2.5 / 3.0 / 4.0 FTE	MeF R8, MeF R9, ACA IS&R, CADE2 TS1, RRP R1

5. **Data Engineering Project Support** – A data-centric application, involving the moving, transformation and processing of large volumes of data will likely require a design approach that centers on the design of the data model and the mechanisms for delivering data to and from the application. The

Enterprise Data Management Office (EDMO) will participate in multiple design sessions to ensure that the data model meets IRS and industry standards while still providing a model that supported the batch processing needs of the system. EDMO also manages the Extract, Transform and Load (ETL) Informatica platform and tools. The estimator selected the Bronze category of effort from predefined categories of support as a placeholder for data engineering services that may be required for this project. The Bronze level of service is primarily documentation review; the other levels involve direct participation of SE in the project. The service levels were jointly developed by EPO and SE and determined from a review of current support that the organization has provided for several projects. For the Gold and Silver levels, the project size criteria are as follows:

- Medium applies in most cases, and typically represents a project adding significant new functionality to an existing system.
- Small applies to a project for a minor enhancement of an existing system.
- Large applies to a project implementing a new system, or changes to a complex system (multiple subsystems or many interfaces with external systems).

Table 6-3. Data Engineering Project Support

Type	Effort (Least / Likely / Most)	Analogous Projects
None		CPE Enhancement or not a data centric application
Bronze	80-120 hours	Solution Engineering planning
Silver - S / M / L	Half of Gold level	Solution Engineering planning
Gold - Small	0.2 / 1.0 / 2.0 FTE	ACA IFSV, MeF R8, MeF R9, ACA IS&R
Gold - Medium	2.0 / 3.5 / 5.0 FTE	RRP R1, ACA CDR, CADE2
Gold - Large	5.0 / 6.5 / 8.0 FTE	BDA

6. **DBA / SA Support** – All estimates will include effort for Database Administrator / System Administrator Support for hosting and maintaining development and test environments that range from 1.1 / 2.1 / 3.3 (Least / Likely / Most) FTEs. The level of effort was determined based on ongoing EPO analysis of actual costs from completed IRS IT projects.
7. **AD Non-Developer Project Support** – All project estimates include minimum program support resources, unless otherwise specified, as shown in Table 6-4. Program Office costs exclude direct software development management, which is included in the software development labor estimate.

Table 6-4. AD Non-Developer Project Support Level of Effort

Support Type	Level of Effort (LOE) per Schedule Month
AD Project Manager	1 FTE LOE (Default is .5 to 1 FTE LOE)
AD Domain Support	.5 to 1.5 FTEs LOE
AD Travel	1 one-person trip per 2 months @ \$1,800 per trip

8. **Software Operation and Maintenance** – O&M begins at the completion of the system deployment phase and was estimated to be 20% of the development effort annually unless known to be otherwise. Purchased Software O&M was estimated to be 20% of licensing costs annually unless known to be otherwise.

6.3 Project Infrastructure

1. **Purchased Hardware** – No new hardware was included in this estimate.

2. **IRS Enterprise Portal (IEP)** – The new Registered User Portal (RUP) (deployed August 2013) and Public User Portal (PUP) (deployed July 2012) hosted on the IEP will be supported under a contract that is being managed by the Portal Project Management Office (PPMO). Placeholder costs are included in the estimate to host new applications on the IEP however catalogs that are currently used are based on the old portal support costs. The catalogs used assume that the effort will depend on the degree portal infrastructure customization that will be required for the application. Support levels are assumed to be Few Modifications based on the following definitions:
 - a. **Hosting Only** – The project intends to use the Portal services "as is". This option assumes that the project will only require minor configuration changes. This option also assumes that the new application will rely on a set of standard JVM class libraries that implement the Java API (Application Programming Interface). The catalog entries include only the Solution Engineering labor hours to configure the environment.
 - b. **Few Modifications/Increased Capacity** – The project intends to use the Portal services with only one or two minor modifications. Solution Engineering will advise when a project's impact on an existing environment will require increased capacity.
 - c. **Many Modifications** – The project intends to use the Portal, but needs to make several changes and/or introduce new technologies and/or needs a separate environment. The project needs a separate environment if the Portal is expected to require additional capacity to support a large number of new users that require authentication services.
3. **Security Certification and Accreditation (C&A) Support and Planning** – The estimator selected the New/Moderate Risk category from predefined elements from the Security cost catalog. This estimate assumes that each engaged service provider will perform the required security due diligence, so no costs are included for Cybersecurity to perform those tasks.
4. **Network Augmentation** – The estimator selected the Medium category from predefined elements from the Network cost catalog as placeholders for effort that may be required to configure the network to support the increase in the volume and size of transactions over the IRS Wide Area Network (WAN).
5. **O&M Support for Hardware** – Estimated at 20% of purchase cost annually for 5-year rust replacement.

6.4 Business Operating Division (BOD) Support (non-IT Costs)

BOD-support costs incurred to support the IT development will include the following:

1. **BOD Project Support** – Labor assumptions are as follows:
 - a. One full-time BOD Project Manager for the duration of the project
 - b. A Business Systems Planning (BSP) Project Manager ¼ to ½ time
 - c. Subject Matter Experts – 1 to 5 FTEs / all in-house
2. **BOD Travel** – 1 one-person trip per month @ \$1,800 per trip
3. **Development and Printing of Training Materials** – effort to update training materials is estimated at 4 FTEs for 1.5 months; cost to print training materials is estimated between \$25K and \$100K.

6.5 Deployment Services

This estimate includes the following activities:

1. **AD Labor** – AD effort during the deployment phase is estimated as 50% of the peak staff for AD development based on preliminary analysis of historical project costs.
2. **UNS-D Labor**

- a. IDEA Lab Desktop Application Certification – 200-280 hours to certify and create installation package
- b. Get Services Help Desk Probe and Response Guide – 40 hours
3. **Facilities and Site Prep** – included \$5K for each installed site.
4. **Transition Management** – The estimator selected the Medium, 12 months category from predefined elements from the Transition Management cost catalog.

7 Issues and Risks

1. The cost of e-Filing new form types varies considerably. Estimate was based on prior estimate; not actuals.

8 Management Reviews

A summary cost analysis of the new FY2014 legislative proposals was sent to the Associate Chief Information Officer (ACIO) of Application Development (AD), Gretchen McCoy, the Assistant ACIO of AD, Nancy Sieger, and the Director of Financial Management Services (FMS), Ursula Gillis on December 18, 2013. The deck contained a summary of the costs for implementing new legislative proposals that were added by Treasury Tax Policy in the FY 2014 President's Budget, and included this proposal to require Form 990 series forms to be e-filed. Because it is not known if the proposed legislation for any of the proposals will be actually be passed into law (usually, legislation is not passed) the management did not request a briefing on the results.

9 Appendix A – Standard Ground Rules and Assumptions (GR&As) for Estimation

This section provides an overview of the standard GR&As that are applied on EPO estimates. Exceptions to GR&As are allowed and not uncommon. GR&A exceptions are noted within the BOE Report as exceptions to GR&As. Unless specifically noted as an exception, all GR&As included in the BOE are applicable to the estimate. Estimates that make use of these conventions will be easier to understand when they are reviewed for QA, or when they need to be modified.

1. **Productive Hours per Month** – Schedules are based on the availability of 152 effort hours of both employee and contractor labor per person month for project work. This is equivalent to 1,824 productive hours per person per year and excludes vacation, sick, and administrative time. This is used for both IRS and Contractor labor. Assumption is that Contractor labor rates are applied only to hours actually charged for work on contract.
2. **Percentage of In-House Labor for DP Organizations** – DP organizations are organizations that are responsible for delivering parts of the proposed solution for a project.
 - a. Every non-rollup element in the EBS report has a DP Identifier shown in Table 9-1. This property is used to allocate costs by DP in estimate reporting. The distribution of hours between IRS and contract labor varies by DP.
 - b. The assumptions for percentage of in-house labor by DP are provided in Table 9-1. Distributions represent organizational defaults or, in the case of AD, projections obtained by the estimator for this estimate since AD labor distribution varies widely between IRS and Contractor labor depending on application.

Table 9-1. Assumptions for % In-House Labor for DP Organizations

DP Organizations		% In-House
AD	Application Development	50%
BOD	Business Operating Division (all: W&I, SB/SE, LB&I, TE/GE, etc.)	100%
CS	Cybersecurity	10%
EOps	Enterprise Operations	100%
ES	Enterprise Services	30%
EST	Enterprise System Testing	30%
PMO	Program Management Office	100%
SE	Solution Engineering	30%
TMO	Transition Management Office	5%
UNS-D	User and Network Services – Desktop	100%
UNS-N	Enterprise Networks – Network	80%

3. **Probability of Completion** – The Confidence Level (CL) that a project will deliver the completed scope of work within estimated cost and schedule.
 - a. Software size, labor rates, and other program/cost attributes are entered into our cost models as least, likely and most ranges that result in a range of projected cost for best- through worst-case implementation scenarios. The 50% CL equates to a 50% likelihood that the project will deliver all functionality on schedule and within budget, and the lowest recommended funding level if the project is approved. A lower CL is accompanied by a lower cost projection, but also a higher risk that the project will require more money and/or schedule than estimated.
 - b. Budget projections are specified as point estimates. The CL for a point estimate associates the CL with a dollar value on the cost curve. For Vision and Strategy phase estimates, point estimates are specified at an 80% confidence level.

4. **Base Year Labor Rates** – All labor costs are based on the fiscal year of the start date of the project. The IRS rates vary by DP and are derived from the UCR Calculator that is maintained by the Office of the Chief Financial Officer (CFO).
- a. Hourly rates are calculated by dividing the annual FTE costs in the UCR calculator by 1,824 which is the assumed number of productive hours per year for an IRS or contractor employee. Table 9-2 provides an overview of IT labor rates applied in estimates by functional area. The table shows the assumed rates for support by the top-level Services and Enforcement organizations. Many organizational units comprise the composite rates shown. If better rate information is known for the actual organizational unit(s) supporting a project, the estimator may override the composite rates with unit rates.
 - b. Contractor rates are derived from the Independent Government Cost Estimate (ICGE) rates that are published by the Total Information Processing Support Services (TIPSS) Program Management Office and updated annually. Table 9-2 and

Table 9-3 show the TIPSS labor categories that were mapped to each functional area and used to provide a range of costs for hourly contractor support. For in-flight projects, actual contractor rates should be used in lieu of the rates shown in the tables.

Table 9-2. IRS and Contractor IT Labor Rates by Functional Area

Functional Area	Range	IRS Hourly Rates			TIPSS IGCE Contractor Hourly Rates			
		2013	2014	2015	Mapped Category	2013	2014	2015
AD (9R)	Least	76.70	77.19	78.27	Applications Systems Analyst	104.49	107.42	110.64
	Likely				Systems SW Engineer	116.78	120.05	123.65
	Most				Senior IT Specialist	132.04	135.74	139.81
EOps (9S)	Least	67.87	70.01	70.99	IT Administrative Specialist	68.65	70.57	72.69
	Likely				IT Administrative Specialist	68.65	70.57	72.69
	Most				Senior IT Admin Specialist	82.77	85.09	87.64
UNS-N (9T)	Least	72.20	73.25	74.28	Network Engineer	106.87	109.86	113.16
	Likely				Network Engineer	106.87	109.86	113.16
	Most				Telecom Engineer	126.43*	129.57	129.57
UNS-D (9X)	Least	62.88	62.77	63.65	Jr. IT Technician	60.15	61.83	63.68
	Likely				IT Technician	77.40	79.57	81.96
	Most				Senior IT Technician	96.01	98.70	101.66
CS (90/9K)	Least	83.53	84.54	85.72	Jr. Security Specialist	82.75	85.07	87.62
	Likely				Security Specialist	109.96	113.04	116.43
	Most				Senior Security Specialist	135.48	139.27	143.45
ES (9U/66/67) Includes SE	Least	94.24	95.67	97.01	IT Specialist	104.00	106.91	110.12
	Likely				Information Engineer	124.89	128.39	132.24
	Most				Systems Architect	137.04	140.88	145.11
S&P (9Z) includes TMO	Least	85.96	88.10	89.33	Information Engineer	124.89	128.39	132.24
	Likely				Information Engineer	124.89	128.39	132.24
	Most				Senior IT Specialist	132.04	135.74	139.81
BSM (6D) includes PMO	Least	83.39	84.43	85.61	Task/Project Manager	161.89	166.42	171.41
	Likely				Business SME	186.46	191.68	197.43
	Most				Business SME	186.46	191.68	197.43

* Note – UNS-N and TMO rates marked with an asterisk were recommended by the Functional Area.

Table 9-3. Composite IRS and Contractor Labor Rates for Services and Enforcement

Functional Area	Range	IRS Hourly Rates			TIPSS IGCE Contractor Hourly Rates			
		2013	2014	2015	Mapped Category	2013	2014	2015
WAGE (1K/Activity Type 5 (CSR))	Least	48.30	46.05	46.69	Bus. Process Eng Specialist	109.36	112.42	115.79
	Likely							
	Most							
WAGE (BOD Composite)	Least	75.44	78.40	79.50				
	Likely							
	Most							
LB&I (BOD Composite)	Least	80.04	80.48	81.61	Bus. Process Eng Specialist	109.36	112.42	115.79
	Likely							
	Most							
CIDV (BOD Composite)	Least	46.00	52.52	53.26				
	Likely							
	Most							
SBSE (BOD Composite)	Least	52.93	50.03	50.73	Information Engineer	124.89	128.39	132.24
	Likely							
	Most							
TEGE (BOD Composite)	Least	60.44	59.73	60.57				
	Likely							
	Most							

- Adjustment for Inflation** – With the exception of the Investment Summary Report, all reported costs are shown in base year 2015 dollars. The Investment Summary Report in the ISR Extract shows the inflation adjusted numbers alongside the base year numbers.

Table 9-4 shows the EPO developed inflation index, rates, and sources for the rates. This is a “raw” index so inflation adjusted numbers are reflected in their own base year (without the multi-year spend-out implied by a weighted index). EPO maintains complete documentation for its index in a white paper entitled “Inflation Documentation (2012-01-11 v1.1)”.

6. O&M Phase Duration – O&M phase duration extends to a point five years after project initiation. Unless noted, O&M phase estimates do not include software modifications for tax law changes, legislative mandates, and moderate to large functional enhancements.

Table 9-4. Inflation Indices and Rates

FY	Indices		Rates		Comments
	IRS FTEs	Capital	IRS FTEs	Capital	
2006	0.860	0.852	3.30%	3.00%	Rates from Dept. of Labor, Bureau of Labor Statistics, Employment Cost Index (ECI), for Public and Private workers
2007	0.888	0.879	3.30%	3.10%	
2008	0.918	0.907	2.90%	2.80%	
2009	0.944	0.933	1.50%	1.20%	
2010	0.959	0.944	1.90%	2.00%	
2011	0.977	0.964	2.00%	2.10%	Rates from Treasury Guidance via CFO's Office (12, 13 only); increase in IRS FTEs reflects frozen pay with increased value of health benefits.
2012	0.996	0.984	0.37%	1.60%	
2013	1.000	1.000	0.39%	1.60%	<p>The FY14 IRS FTE Rate (1.15%) is a composite rate. IRS FTE pay raises take effect in January, so EPO assumed one quarter at the low rate of increase, reflecting an increase in the value of benefits but not pay (~0.4%), and three quarters reflecting a 1.4% increase in total compensation.</p> <p>The Capital rate (1.6%) was extrapolated from Dept. of Treasury guidance for FY 2013, because Treasury does not provide guidance past 2013 at this time.</p> <p>The CFO's office advised that IRS FTE increases are expected to be 1.4% in 2014; EPO extrapolated for future years in the absence of additional guidance.</p>
2014	1.004	1.016	1.15%	1.60%	
2015	1.015	1.032	1.40%	1.60%	
2016	1.030	1.049	1.40%	1.60%	
2017	1.044	1.066	1.40%	1.60%	
2018	1.059	1.083	1.40%	1.60%	
2019	1.074	1.100	1.40%	1.60%	
2020	1.089	1.118	1.40%	1.60%	
2021	1.104	1.135	1.40%	1.60%	
2022	1.119	1.154	1.40%	1.60%	
2023	1.135	1.172	1.40%	1.60%	
2024	1.151	1.191	1.40%	1.60%	
2025	1.167	1.210	1.40%	1.60%	
2026	1.183	1.229	1.40%	1.60%	
2027	1.200	1.249	1.40%	1.60%	
2028	1.217	1.269	1.40%	1.60%	
2029	1.234	1.289	1.40%	1.60%	
2030	1.251	1.310	1.40%	1.60%	
2031	1.268	1.331	1.40%	1.60%	
2032	1.286	1.352	1.40%	1.60%	

10 Appendix B – Software Size and Development Attributes

This section defines the software components for the core functionality in the estimate and characterizes each component by the knowledge base attributes used by the SEER for Software model. The knowledge base attributes identify the set of reference items that will be used by the SEER for Software model to estimate the effort and schedule of the software components to be developed or enhanced. These settings are summarized in Table 10-1.

Table 10-1. Software EBS Component Sizes and Attributes

Software EBS Component	Effective Size	Implemented Language	Acquisition Method	Platform	Application Type	Development Method	Effective Productivity (output)
Filter Form 990	X UFP ≈ 1,278 SLOC	Third Generation Language (3GL)	New Development	Sever	Database	Waterfall	57

UFP – Unadjusted Function Points

The following notes apply to estimates developed using SEER for Software:

- Development Standard** – specified as IS Formal on all estimates.
- Data Normalization for APR Software Size** – Physical line counts obtained from the Application Program Registry (APR) and used as a basis for the software size of core functions represent physical lines of code. These sizes were normalized to logical lines for input to the SEER for Software model by reducing the sizes by 30%. The normalization is used to equate the counts to an industry standard code count by removing blank and comment lines.
- SEER for Software Model Calibration** – The combination of Knowledge Bases (Kbase) selections and development language, will result in a default set of parameter settings that characterize the development effort and establish an effective productivity for software development. For estimates developed during the Vision and Strategy phase, EPO maintains model default settings with the exception of the overrides shown in Table 10-2. For in-flight projects, parameters are tailored for each environment. The impact of the IRS Override on effort and schedule are shown in the last column of Table 10-2.

Table 10-2. Default Parameter Overrides

Parameter	Model Defaults			IRS Overrides			% Change	
	Least / Likely / Most	Least / Likely / Most	Least / Likely / Most	Least / Likely / Most	Least / Likely / Most	Effort	Sched	
PLATFORM	Server							
LINES								
Programs included in Size	1			10k-20k per Program				
PRODUCT DEVELOPMENT REQUIREMENTS								
Requirements Volatility	Nom	Nom	Hi	Hi	Hi	Hi+	16%	5%
Test Level	Low	Nom	Hi	Hi-	Hi-	Hi-	5%	2%
Rehost from Dev to Target	Nom	Nom	Nom+	Hi-	Hi-	Hi-	18%	6%
SCHEDULE AND STAFFING								
Min Time / Max Effort	Min Time			Optimal Effort			-29%	19%
CONFIDENCE LEVEL								
Effort Probability	50%			80%			50%	0%
Schedule Probability	50%			80%			50%	0%
REQUIREMENTS								
Reqs Definition Formality	Vlo	Low-	Low	Hi	Hi	VHi	7%	13%
Reqs Effort after Baseline	No			Yes			4%	0%

Parameter	Model Defaults	IRS Overrides	% Change	
SYSTEM INTEGRATION				
Progs Concurrently Int	1	3	3%	1%

11 Appendix E – Acronyms

Acronym	Definition
ACA	Affordable Care Act
AD	Application Development
APR	Application Program Registry
AQT	Application Qualification Testing
BOD	Business Operating Division
BOE	Basis of Estimate
BSAR	Business Systems Architecture Report
BSM	Business Systems Modernization
BSP	Business Systems Planning
C&A	Certification and Accreditation
CER	Cost Estimating Relationship
CIDV	Criminal Investigation Division
CFO	Chief Financial Officer
CL	Confidence Level
COTS	Commercial-Off-The-Shelf
CPE	Current Production Environment
CPU	Central Processing Unit
CS	Cybersecurity
DBA/SA	Database Administrator/Systems Administrator
Dev	Development
DITE	Development Integration and Testing Environment
DP	Delivery Partner
DR	Disaster Recovery
DSR	Design Specification Report
EA	Enterprise Architecture
EBS	Estimate Breakdown Structure
EDMO	Enterprise Data Management Office
ELC	Enterprise Life Cycle
EOps	Enterprise Operations
EPO	Estimation Program Office
ES	Enterprise Services
EST	Enterprise Systems Test
ETL	Extract, Transform and Load
EUP	Employee User Portal
FIT	Final Integration Test
FP	Function Point
FTE	Full Time Equivalent
FY	Fiscal Year
GB	Gigabytes
GELs	Government Equipment Lists
GR&A	Ground Rules and Assumptions
HD	Heavy Duty
IGCE	Independent Government Cost Estimate
IFS	Integrated Financial System
ISR	Investment Summary Report
IEP	IRS Enterprise Portal
ISR	Investment Summary Report
IT	Information Technology
JV	Journal Voucher
LB&I	Large Business and International Division
LOE	Level of Effort
MD	Medium Duty
MIPS	Millions of Instructions Per Second
MS	Milestone (i.e., MS3 is Milestone 3)
O&M	Operations and Maintenance

Acronym	Definition
OMB	Office of Management and Budget
PMO	Project Management Office
PPMO	Portal Project Management Office
PPT	Parallel Production and Test
PRD	Product Requirements Documents
PUP	Public User Portal
RADM	Requirements and Demand Management
RUP	Registered User Portal
SBSE	Small Business/Self Employed
S&P	Strategy and Planning (Functional Area)
SAN	Storage Area Network
SAT	System Acceptability Testing
SE	Solution Engineering
SEER	Software Evaluation and Estimation of Resources
SEER-IT	SEER-Information Technology
SEM	Strategic Enterprise Management
SLOC	Source Lines of Code
SME	Subject Matter Expert
S&P	Strategy & Planning
TAD	Technical Architecture Diagram
TB	Terabyte
TEGE	Tax Exempt Government Entity
TIPSS	Total Information Processing Support Services
TMO	Transition Management Office
TS	Transition State
UCR	Unit Cost Rate
UNS-D	User and Network Services - Desktop
UNS-N	User and Network Services - Network
VROM	Very Rough Order of Magnitude
WAGE	Wage and Investment
WAN	Wide Area Network