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## **NETWORKING BUSINESS LINE**

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The Networking Business Line consists of two major enterprise activities: (I) Headquarters Network Infrastructure and (II) Wide Area Network (DOEnet) Infrastructure (Department-wide).

### **I. Headquarters Network Infrastructure**

#### **Service Description**

The Headquarters Network Infrastructure allows automated inter-connectivity throughout DOE Headquarters elements, as follows:

- Infrastructure serves approximately 200 Headquarters Network Infrastructure segments at the two main headquarters facilities as well as several satellite buildings. There are approximately 10,500 Headquarters Network Infrastructure connections throughout all program organizations.
- Infrastructure enables connectivity to Headquarters Corporate Systems.
- Infrastructure provides access to the Internet, Electronic messaging, and DOE Applications.
- Infrastructure accommodates interface services and communications links to field sites, other government agencies, and public/private business and academic institutions.

#### **Cost Structure**

Headquarters Network Infrastructure costs are predominately fixed and totaled \$3.4 million, composed of:

- Leased telecommunications circuits connecting the metropolitan area locations (including the Germantown campus) into the Headquarters Network Infrastructure;
- Contractual costs for an Internet Service Provider for Headquarters;
- Maintenance of the common Headquarters Network Infrastructure components (routers, switches, firewalls etc.);
- Contractor technical support staff who install, operate and repair the various common network components;
- Telecommunications management and integration services. This cost is applied to Headquarters Network Infrastructure @ **35%** of total cost. [The remaining 65% of such costs is applied to the Telephone business line.]
- Non-federal administrative ("Business Mgmt.") support functions involved with processing of vendor invoices, record keeping, accounting and financial reporting for business related activities. This cost is applied to Headquarters Network Infrastructure @ **50%** of total contractual cost. [The balance of such costs is applied to the Telephone infrastructure at 50%.]
- ADP contractor support involved with converting commercial vendor data files to usage-tracking and customer billing formats (the "Telecommunications Billing System"), including verification and reconciliation of billing data. This cost is applied to Headquarters Network Infrastructure @ **17.5%** of total cost. [The balance of such costs is applied to the Telephone business line at 32.5% and non-WCF Field telephone expenses at 50%.]

- Not included in the Cost Structure: (1) Salaries, benefits, personnel services and payroll processing for federal employees who operate and manage the enterprise activities; (2) Building Occupancy and indirect general administrative expenses (communications, PC support, printing, photocopying) necessary to furnish and equip office facilities for both federal and contractor employees located at DOE facilities; (3) Training and Travel expenses for federal employees involved with operation and management of the enterprise activities.
- Not included in the Cost Structure: Replacement and upgrade of DOE-owned equipment and related depreciation of capitalized assets.

### **Pricing Policy**

The WCF Executive Board adopted the original pricing policy during two consecutive meetings on April 23 and May 21, 1996 (to be effective in FY1997). It provides that the "full cost" of Networking infrastructure is to be recovered by the Networking business line through a pro rata allocation of total estimated service costs, based upon the most recent available inventory of Headquarters Network Infrastructure connections at all Headquarters facilities. The pricing policy was updated by the Board on April 22, 1999 (to be effective in FY2000), to include the addition of an Internet Service Provider in the cost and pricing structure of the business.

### **Pricing Method (Billing Calculation)**

- Total Headquarters Network Infrastructure costs are estimated prior to the beginning of each fiscal year, based upon the cost components itemized in the "Cost Structure" section above. Also, the Headquarters inventory of connections assigned to each program organization is verified prior to the beginning of the fiscal year and revised continuously throughout the year. Total infrastructure costs are allocated to HQ program elements based upon pro rata share of the total Headquarters Network Infrastructure connection inventory on the 25<sup>th</sup> of each month, at the rate of 1/12<sup>th</sup> the estimated annual cost per month.
- Headquarters Network Infrastructure allocation charges are assessed at the Office Level or corresponding organizational level immediately subordinate to the Program Assistant Secretary, Director or Administrator. Since the Headquarters Network Infrastructure enterprise is a Headquarters-only support service, no charges are assessed to Field elements or to HQ LPSO's for Field-related usage.
- Headquarters Network Infrastructure counts for individual organizations (the allocation ratio numerator) may change frequently. The total number of connection counts for all customer organizations (the allocation ratio denominator) changes essentially each month. Therefore, it is likely that both gross monthly charges and per unit rates will be somewhat different from month to month.

### **Billing Cycle**

Headquarters Network Infrastructure allocations are compiled every month, based upon revised connection inventory records. Charges are calculated as of the 25<sup>th</sup> of each month (for the current billing month) and the WCF Manager between the 5th and 7th workday of the following month

normally issues billings. Since billing is current with respect to costs allocated, there are no accrued charges at the end of the fiscal year.

### **Budget Estimating Method**

- Budget estimates are generally developed using the more representative of two historical methods: (1) the sum of actual WCF charges for the most recent 12-month period prior to issuance of the estimates (e.g., the total of May, PY - April, CY, for IRB estimates prepared in May) or; (2) the straight-line projection of actual year-to-date charges for the current FY to extrapolate annualized amounts expected for the current FY (e.g., the total of actual charges during Oct - April times a 7-month annualized, 12/7, for IRB estimates prepared in May).
- WCF budget estimates do not typically include general or presumed inflation factors, although historically-based projections are adjusted accordingly where definite contractual cost increases or decreases are known to impact the future budget year.
- Budget estimates do not typically include potential or proposed changes in business line pricing structures, unless already approved by the WCF Board for the budget year being formulated.
- Extraordinary or unusual changes in usage patterns, customer allocation bases, organizational structures, and customer staffing levels are usually not anticipated in the Fund's estimates (due to insufficient lead time). Similarly, customer purchases of dedicated service and equipment are typically not identified soon enough to be included in Fund projections.
- Budget estimates are provided solely as guidelines for use by program elements in formulating budget requests for Program Direction funding to Congress. Estimates are made available in early May for IRB submissions and in early August for OMB submissions. Program organizations are not bound by WCF estimates and may choose to develop alternative estimates based upon whatever criteria and assumptions are deemed appropriate. To the extent that program customers can predict deviations from the norm, due to any number of relevant circumstances, WCF estimates should be revised to reflect the budgetary impact of such changes. Similarly, customers may choose to adjust Fund estimates to include an inflation factor or to anticipate possible pricing changes.

### **CY Cost Projection Method**

WCF projections of current Fiscal Year (CY) usage and charges are updated monthly and provided as a spreadsheet attachment with each bill (Table III, "Annualized Costs as of [Date]"). Projections are calculated based upon fiscal year-to-date charges annualized. For example, as of the end of April this calculation would be: [7-Month Total Charges (Oct - April)] X 12/7.

### **Business Line Objectives: Balanced Scorecard**

Objectives for this business are in the format of a balanced scorecard.

- **Customers:** Provide customers with timely and consistent services and maintaining as low as possible costs to the customers.
- **Financials:** Improve efficiency and ensure full cost recovery of ongoing daily costs as well as needed periodic capital improvements.

- **Internal Processes:** Streamline internal processes.
- **Learning and Growth:** Enhance the effectiveness, knowledge, and satisfaction of the Lines' employees.

For more information on these objectives and business line performance measures please go to [www.ma.mbe.doe.gov/wcf](http://www.ma.mbe.doe.gov/wcf) and view the Telephone, Networking and Desktop Five-Year Plan.

### **Service Standards**

The HQ service standards for Headquarters Network Infrastructure are:

During Business Hours:

- The normal business hours of attended Headquarters Network Infrastructure operations support services will be from 7:00 a.m. to 6:30 p.m., Monday through Friday.
- Response time for Headquarters Network Infrastructure availability during business hours will be within 2 hours for mission critical hardware problems.
- Response time will be within one business day for non-mission critical hardware problems.

After Business Hours:

- HOTLINE response after 6:30 p.m. will be within 30 minutes for multi-user Headquarters Network Infrastructure problems.
- The Headquarters Network Operations desk is staffed 24 x 7 x 365 for network support calls.

### **Customer Flexibility**

Headquarters Network Infrastructure is a "corporate service" that provides a common, standard facility available to all organizational elements at DOE Headquarters. Since this service promotes the welfare of the general community and is potentially of benefit to all programmatic activities, cost allocations are correspondingly spread across the entire community of connected users. Because the cost components necessary to support this infrastructure are relatively fixed, customer options for direct reduction in the cost of service is limited. However, customer organizations do have some latitude with respect to controlling their pro rata share of these costs. In so doing, customers may also contribute indirectly to incremental reductions, or even reengineering, of overall infrastructure costs. Customers may manage Networking costs in the following ways:

- Manage connection inventory to minimize connections to the common infrastructure.
- Periodically verify inventory of connections and update changes on a continuous basis.
- Request removal of lines no longer needed and reassignment of those transferred to another organization.

## II. DOEnet Infrastructure

### Service Description

The Department of Energy Wide Area Network (DOEnet) infrastructure is a centrally managed network that provides common, standard facilities to carry business related data, DOE-wide. It is available to all organizational elements and locations choosing to connect to it. General service characteristics are:

- DOEnet currently provides connectivity to approximately 40 sites using Asynchronous Transfer Mode (ATM) technology. Other sites may be added in the future as required.
- ATM technology allows the eventual integration of data, voice, and video traffic on the same network, thereby reducing costs.
- Centralized network management provides higher reliability, improved trouble-shooting capabilities, greater operational efficiencies, and increased accountability.
- Each DOEnet site adheres to a uniform connection policy to ensure an acceptable minimum level of security. Network traffic will not pass through public Internet channels and will, therefore, be less subject to interception or unauthorized disclosure.
- DOEnet provides site users the ability to access computer platforms and DOE corporate systems located at DOE Headquarters as well as other DOE sites

### Cost Structure

DOEnet Infrastructure costs to DOE customer organizations were \$2.74 million in FY 2003 and have been budgeted at \$1.9 million for FY 2004. Business line expenditures covered by these revenues include:

- Leased telecommunications circuits which provide the needed bandwidth;
- Site hardware components (routers);
- Contractor technical staff who install, operate and maintain the network hardware/software components and monitor network performance;
- Non-federal administrative support functions involved with compiling system data, preparing customer billing, and maintaining records for business related activities.
- Not included in the Cost Structure: (1) Salaries, benefits, personnel services and payroll processing for federal employees who operate and manage the enterprise activities; (2) Building Occupancy and indirect general administrative expenses (communications, PC support, P&G, photocopying) necessary to furnish and equip office facilities for both federal and contractor employees located at DOE facilities; (3) Training and Travel expenses for federal employees involved with operation and management of the enterprise activities. [Currently, there are no costs of this type associated with DOEnet infrastructure.]

The Office of the Associate CIO for Operations identifies opportunities to make service improvements and maximize operating efficiencies by periodically reviewing DOEnet process elements. By finding economies and downsizing cost components, overall cost reductions were realized during FY2003 that have been carried into FY2004.

In 2003 the WCF board authorized the creation of the Working Capital Fund IT Advisory

Committee which is intended to advise the Working Capital Fund Board of Directors on all information technology matters related to the operation of the network, telecommunications, and desktop business lines. Through the organizational-diversity of its members the Committee will ensure all IT matters are handled with a robust perspective for the good of the entire Department of Energy.

### **Pricing Policy**

The WCF Executive Board adopted the original pricing policy on July 26, 2000, (to be effective in FY2001). It was a provisional policy that authorized the "full cost" of DOEnet infrastructure to be recovered through a pro rata allocation of total estimated service costs, based upon DOE-wide on-board staffing at the beginning of FY2001 (excluding BPA and FERC). That the Board superseded pricing policy on March 29, 2001 (to be effective in April, 2001), to provide for pro rata allocation of total estimated service costs based upon measured transmission usage over the system. For measured usage related to the corporate personnel system (CHRIS), costs were to be further sub-allocated to all benefiting DOE program elements, based upon on-board staffing at the beginning of the fiscal year.

On August 27, 2003 The WCF Executive Board authorized a change to DOEnet billing methodology: instead of relying on the actual use of the network by sending and receiving organizations, the new method is based on the cost of providing DOEnet capacity to each site. The purpose of this change was to remove the economic disincentives to the actual use of the network, because the marginal cost of such use, once the network is in place, is nil.

### **Pricing Method (Billing Calculation)**

- Total DOEnet Infrastructure costs are estimated prior to the beginning of each fiscal year, based upon the cost components itemized in the "Cost Structure" section above.
- Charges for DOEnet are based on the total of: (1) Direct costs consisting of bandwidth and hardware and billed to the site landlord (Lead Program Support Office); (2) Shared costs consisting of managed network services and engineering are allocated based on the number of DOEnet sites billed to the landlord (Lead Program Support Office).

### **Billing Cycle**

Program-related DOEnet costs are compiled and billed monthly. Since billing is current with respect to costs allocated, there are no accrued charges at the end of the fiscal year.

### **Budget Estimating Method**

[See "Budget Estimating Method" under Section I., "Headquarters Network Infrastructure."]

### **CY Cost Projection Method**

WCF projections of current Fiscal Year (CY) Charges are updated monthly and provided as a spreadsheet attachment with each bill (Table III, "Annualized Costs as of [Date]"). Projections

are calculated based upon fiscal year-to-date charges annualized. For example, as of the end of April this calculation would be: 7-Month Total Charges (Oct - April) X 12/7.

### Service Standards

Transmission and hardware components of the DOEnet (the circuits/leased lines and routers) are designed to provide 99.9% uptime reliability. DOEnet Operational Network uptime reliability is 99.9% for end-to-end port availability and data delivery rate. Circuit availability is determined by GSA FTS2001 contract. The HQ service standards for DOEnet are:

During Business Hours:

- The normal business hours of attended DOEnet operations support services will be from 7:00 a.m. to 6:30 p.m., Monday through Friday. A service representative may be contacted at **(877) 823-3205**.
- Service resolution times depend upon the priority of service involved, as follows:
  1. Within 2 hours for Severity Level 1 ("Outages"). Examples include: circuit down, circuit bouncing, circuit slow response, and multiple sites down/OOS.
  2. Within 4 hours for Severity Level 2 ("Impaired Service").
  3. Within 8 hours for Severity Level 3 ("Service Related"). Examples include: line errors/garble, intermittent line bouncing, and slow response.
- Hardware response times vary according to circumstance, as follows:
  1. Within 4 hours for mission critical hardware problems, in those cases where spare parts are on hand.
  2. Within 8 hours, where spare parts must be ordered.
  3. Within one business day for non-mission critical hardware.

After Business Hours:

- DOEnet service response time after 6:30 p.m. will be within 4 hours.
- The DOEnet Network Operations desk is staffed 24 x 7 x 365 for network support calls.

### Customer Flexibility

Customers may manage DOEnet costs in the following ways:

- Field sites may choose not to connect to the DOEnet system (i.e., not to install a port).
- As an alternative to DOEnet, transmit information via the Internet (in cases where data sensitivity is not a concern).

### Points of Contact

Business Line Manager:

Anthony Russo

301-903-4426

Service Managers:

DOEnet

Rich Otis

301-903-5310

Headquarters Network Infrastructure

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For more information, customers are invited to visit to CIO web site for the Network business at <http://cio-ops.doe.gov/dir.cfm?id=network> .

### Frequently Asked Questions

- Q.** Why aren't Headquarters Network Infrastructure charges based upon actual usage rather than number of connections?
- A.** Headquarters Network Infrastructure usage by individual Program elements is currently not measured. Although it is possible to do so, tracking network traffic would require installation of specialized system software, at very considerable cost. During past discussions, the consensus of the IT Working Group has been that the potential benefit of implementing such measurement capabilities does not sufficiently justify the additional cost.
- Q.** How do I verify the number of network connections assigned to my organization?
- A.** As part of the negotiated Customer Service Agreement with your organization (or at any time upon request), the Networking business line will furnish you with its most recent available inventory listing of connections. That listing will indicate the location of each connection and the individual to whom it is assigned. You may use the listing to confirm some or all of the connections indicated and notify the designated business line contact of suspected discrepancies.
- Q.** What provisions are included in standard Customer Service Agreements and how often are such agreements negotiated with my organization?
- A.** Service Agreements include: (1) a description of the subject service to be provided; (2) the standards of quality, timeliness and reliability for which service providers are responsible; (3) technical service specifications (where applicable) and; (4) any measurements or inventory counts that pertain to the authorized business pricing policy or billing methods (e.g., number of workstations, telephone lines, network connections). Successfully negotiated Service Agreements also contain the signature of appropriate approving representatives for both the lead Program customer organization and the WCF enterprise activity. These agreements are typically documented once each fiscal year, prior to October 1. However, in those instances where a Service Agreement has not been "renewed" for the next FY, either: a) the most recent documented Service Agreement will be in effect, provisionally (when it is clearly understood that service will continue) or; b) service may be discontinued at the unilateral direction of an authorized Program official or the Business Line Manager (for those activities where service is severable).
- Q.** If expected service standards are not met, will customers be compensated in some form; e.g., through a partial refund of charges or with expedited/overtime service to mitigate delays. Will service providers be held accountable?
- A.** As a general policy, the WCF does not issue refunds except where errors in billing computation have occurred or where customer advances exceed actual annual charges. This is because WCF business lines do not earn a profit and have no "corpus" with which

to absorb unbilled/unallocated costs. To the extent that one or more customers do not pay incurred costs, those costs (unless relatively minor) must be covered in some other way during the current FY or the next. Potentially, that would require adding unreimbursed costs into unit rates or spreading the revenue shortfall as an allocation to all other customers. In other words, it would involve the equivalent of either "contingent overpricing" or an "insurance policy", financed by the general WCF customer community. The WCF Executive Board has adopted neither approach.

However, in those cases where service standards are not met, leading to a material loss of productivity, and incurred costs are reduced by the contracted service provider as a result, those cost reductions will be applied by the business line as a credit to any and all customer organizations adversely effected by insufficient performance. In addition, the Business Line Manager and operating staff will pursue every reasonable option to restore service to standard levels as quickly as possible and, to the extent feasible, apply all available resources to compensate for performance deficiencies and lost time.

With respect to accountability, outside vendors involved in providing WCF services are responsible for unsatisfactory performance through applicable provisions of the contractual agreement that governs their working relationship with the Department. Federal business line managers and staff are held accountable for unsatisfactory performance in the same ways that all DOE employees are: through semi-annual ratings against established performance standards and, when warranted, appropriate progressive disciplinary action.