

SADIS COST RECOVERY ADMINISTRATIVE GROUP

TWENTIETH MEETING

(Gatwick, UK, 27th November 2019)

ESTIMATED SADIS COSTS : 2 to 5 YEARS

(Presented by the United Kingdom)

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2020 and estimated cost for the next 2-5 years

REFERENCES

SADIS Agreement
SCRAG Reports 1-19
METP WG-MOG/3 Report
METP WG-MOG/4 Report
METP WG-MOG/6 Report
METP WG-MOG/10 Report

1. INTRODUCTION

1.1 The medium term (two to five years) forecast of the expected costs of operating the SADIS Services are provided in this Working Paper. Resource requirements will vary due to changing demand and these have been anticipated where possible and identified in the tables presented. Where the METP WG-MOG/9 has identified potential changes to the SADIS inventory, these will be reflected as appropriate.

2. DISCUSSION

2.1 The attached Table 1 identifies expected budgets for the years 2020 to 2023 based on expected trends for expenditure by the Met Office and NATS. 2018 actual costs and 2019 forecast costs are provided for comparison, as requested by the SCRAG/12 meeting.

2.2 An additional increase in staff day-rates is expected in the coming years so increases have been included for years 2021 onwards.

2.3 Costs attributable to the development of a next generation SADIS system (to come into operation by November 2022) are not included in these projections, as development and operating costs have not yet been determined.

2.4 The following notes should be read in conjunction with Table 1 which is contained in the Appendix to this WP.

- a. **Met Office to NATS link**
Communications costs between the SADIS Gateway, operated by NATS, and the Met Office.
- b. **Message Switch**
These charges relate to the routing of data through into SADIS FTP.
- c. **Internet bandwidth.**
During 2019 SADIS FTP operated using a proportion of the SADIS providers total Gbit/sec internet connection. This charging will cease at the end of 2019 due to the migration of SADIS to a cloud-based provider. See items e f and g for the new charging structure.
- d. **FTP equipment running costs**
The on-premise FTP servers will be retired at the end of 2019.
- e. **AWS server running costs**
The cost of operating SADIS FTP using Amazon Web Services (AWS) Cloud computing reflects all the individual elements that make up SADIS, and has been optimised to minimise costs.
- f. **AWS data egress charges**
This cost is directly proportional to the volume of data downloaded by the SADIS users and is billed at a rate of GBP 0.07 per GB. Projected costs for 2021 onwards take into account the projections included in SCRAG20 WP/14.
- g. **AWS Contingency**
Due to the uncertainty in the exact AWS download charges (see f. for info) a 15% contingency has been included. Originally SCRAG/6 proposed that a charge of £5,000 be budgeted for ad-hoc maintenance, however there is no longer any equipment to maintain in this way – therefore this has been repurposed to cover AWS contingency charges instead.
- h. **AWS cloud operations expertise**
This cost enables SADIS to benefit from the provision of AWS cloud operations experts who are able to provide oversight and guidance in the operation of SADIS
- i. **Service Desk equipment**
These charges cover equipment costs for the service desk functions.

j. Next Generation SADIS costs

The next generation SADIS system will become fully operational in November 2022, and as yet operating costs for the AWS infrastructure it will use are unknown. It is possible that the OPMET provision may be delivered as early as November 2020, and we are urgently looking at the likely operating costs

k. Staff costs

The cost structure has been revised for 2020, therefore the entries marked with a “k” are being replaced by first/second/third line support. The new cost structure reduces technical support costs from approximately GBP 63,000 to GBP 40,500.

l. First Line Support costs

This includes 24x7 incident handling functions (call and e-mail) provided by the Met Office Service Desk and is broken down as follows:

| Description | Value GBP |
|--|-----------|
| Incident Handling (initial call, follow up etc), 62 incidents per year | 950 |
| Incident Handling training – 2 hours per FTE year | 1,850 |
| Service Management – 8 hours per year | 2000 |

m. Second Line Support

This includes 24x7 system monitoring and incident handling functions to ensure the timely resolution of any SADIS operating problems and is broken down as follows:

| Description | Value GBP 20500 |
|---|-----------------|
| Incident Handling (investigation, communication, resolution, documentation), 100 incidents per year | 5,800 |
| Monitoring costs, 9205 alerts | 8,800 |
| Incident Handling training – 4 hours per year per FTE | 2,500 |
| Service Management – 15 hours per year | 3,400 |

n. Third and Fourth Line Support

This includes incident investigation and resolution provide by the Message Switching department, as well as the administration of SADIS user accounts and data routing. Fourth line support provides technical assistance in the AWS environment that SADIS is operating in. The break down is as follows:

| Description | Value GBP |
|---------------------------|-----------|
| Message Switching Manager | 5,000 |
| Message Switching Staff | 5,000 |
| AWS technical support | 5,000 |

- o. Cost recovery and administration**
Support is primarily provided by the SADIS Manager in the day to day operation of SADIS, management of user accounts, liaison with users, invoicing and planning and development work within the remit of the METP-WG/MOG (SADIS). Procurement and Finance support is required to implement the SADIS Cost Recovery process (SCRAG)
- p. Travel Costs**
Travel and subsistence costs for Met Office staff to attend appropriate Meteorological Panel Working Groups (Meteorological Operations Group, WG-MOG, in relation to SADIS) and SCRAG meetings are included here.
- q. Cost of Capital**
Cost of capital for future years has been estimated using the revised methodology applied in 2008 and described in SCRAG/10 WP/13.
- r. Administrative costs (bank charges, couriered invoices etc)**
Following SCRAG Conclusion 14/7, this item includes costs relating to the processing of invoices (usually when administration charges reduce the amount actually received by the SADIS Provider by a small amount), or the cost of couriered invoices where normal surface mail is unreliable.

2.5 Notes on SADIS Gateway costs.

- s. Staff Costs – Systems Engineers**
The NATS SADIS Gateway Costs are as described in SCRAG10-WP/14. Staff costs and communications costs have been updated in line with the latest available data.

These are reflected in Table 2 which is contained in the Appendix to this WP.

- t. Systems Maintenance**
These are reflected in Table 2
- u. SADIS Gateway Upgrade**
A mid-life upgrade to the SADIS Gateway Infrastructure was undertaken during 2015, and became fully operational on 6 January 2016. Total project costs are £1,018,601. The following component costs are attributable to SADIS: Capitalised staff costs of £77,520 and hardware costs of £109,810 will be depreciated over 5 years. Cost of capital has been calculated at a rate of 5.88% on the reducing balance in each year.

Depreciation schedule for SADIS Gateway mid-life upgrade.

| | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------------|---------|---------|---------|--------|--------|
| Value at start of year | 187,330 | 149,864 | 112,398 | 74,932 | 37,466 |
| Depreciation | 37,466 | 37,466 | 37,466 | 37,466 | 37,466 |
| Value at end of year | 149,864 | 112,398 | 74,932 | 37,466 | 0 |
| Average value in year | 168,597 | 131,131 | 93,665 | 56,199 | 18,733 |
| Interest at 5.88% | 10,983 | 8,786 | 6,590 | 4,393 | 2,197 |

3. CONCLUSIONS

3.1 A substantial review of the SADIS operating support costs by the UKMO has led to a significant reduction in costs for 2020 onwards.

3.2 Moving SADIS FTP from an on-premise system to the Amazon Web Services (AWS) cloud also brings a significant decrease in operating costs for 2020 as well as a significant increase in system speed and resilience. The annual running for AWS will vary from year to year, based on the volume of data hosted on the servers and the number of SADIS users. This is because the “data egress” part of the operating costs is proportional to the amount of data being downloaded by the SADIS users. Other changes such as new requirements and technological developments agreed by the PIRGS and by the working groups under the METP may also result in changes in operating costs.

3.3 These figures should therefore be treated as an initial estimate of costs for the planning period and are subject to change. Operating costs for the next generation SADIS system (due to become operational at the end of 2022) are not included on these projections.

4. ACTION

4.1 The SCRAG/20 is requested to note these provisional figures for the SADIS Costs.

TABLE 1: UKMO Cost and manpower resource projections until year 2023 (at 2019 prices)

| INVENTORY REF: | Note | DESCRIPTION | Actual 2018 | FOO 2019 | Est 2020 | Est 2021 | Est 2022 | Est 2023 |
|---|------|---------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| UK MET OFFICE COSTS | | | | | | | | |
| 1. Equipment | | | | | | | | |
| Principally procured for SADIS | | | | | | | | |
| comms link SADIS Gateway & Met Office | a | | 3,340 | 3,340 | 3,500 | 3,500 | 3,500 | 3,500 |
| Not procured principally for SADIS | | | | | | | | |
| message switch | b | | 5,364 | 6,220 | 5,500 | 5,500 | 6,000 | 0 |
| internet bandwidth (FTP) | c | | 12,960 | 8,021 | 0 | 0 | 0 | 0 |
| FTP equipment running costs | d | | 24,288 | 24,000 | 0 | 0 | 0 | 0 |
| AWS Servers | e | Server running costs | 0 | 0 | 9,000 | 10,000 | 11,000 | 10,000 |
| AWS data egress | f | Data download costs | 0 | 0 | 2,400 | 6,000 | 7,200 | 5,000 |
| AWS Contingency | g | | 0 | 0 | 1,710 | 2,400 | 2,730 | 2,250 |
| AWS Cloud Operations Expertise | h | | 0 | 0 | 5,000 | 5,000 | 5,000 | 5,000 |
| Service Desk Equipment Costs | i | | 10,307 | 10,308 | 11,000 | 12,000 | 12,000 | 13,000 |
| Equipment sub total | | | 56,259 | 51,889 | 38,110 | 44,400 | 47,430 | 38,750 |
| 2. Next Generation SADIS service provision | | | | | | | | |
| IWXXM OPMET | j | AWS Server running costs | 0 | 0 | 0 | tbd | tbd | tbd |
| | | AWS Data download costs | 0 | 0 | 0 | tbd | tbd | tbd |
| Gridded data API | | AWS Server running costs | 0 | 0 | 0 | tbd | tbd | tbd |
| | | AWS Data download costs | 0 | 0 | 0 | tbd | tbd | tbd |
| SIGWX API | | AWS Server running costs | 0 | 0 | 0 | tbd | tbd | tbd |
| | | AWS Data download costs | 0 | 0 | 0 | tbd | tbd | tbd |
| Development sub total | | | 0 | 0 | 0 | 0 | 0 | 0 |
| 3. Annual Staff Requirements | | | | | | | | |
| Operating Support | | | | | | | | |
| | k | Help Desk 0.3% | 5,916 | 5,000 | | | | |
| | k | Technical Team Leader 3.5% | 12,161 | 12,999 | | | | |
| | k | Network Systems Supervisor 7% | 24,320 | 25,997 | | | | |
| | l | First Line Support | | | 4,800 | 5,000 | 5,250 | 5,500 |
| | m | Second Line Support | | | 20,500 | 2,100 | 21,500 | 22,000 |
| | n | Third and Fourth Line Support | | | 15,000 | 15,500 | 16,000 | 16,500 |
| Additional Support | | | | | | | | |
| Systems Integration Team | k | Network computer engineer | 5,144 | 5,499 | | | | |
| Message Switching Manager | k | Message Switching Manager | 5,144 | 5,500 | | | | |
| Data Traffic | k | Communications Engineer | 1,863 | 2,000 | | | | |
| Message Switching Team | k | Technical Officer | 5,592 | 5,800 | | | | |
| Administrator | o | Executive Officer | 63,615 | 64,000 | 65,000 | 66,000 | 66,000 | 66,000 |
| International Aviation Management | o | Aviation Manager | 8,155 | 8,200 | 8,400 | 8,600 | 8,600 | 8,600 |
| Contract Procurement and Management | o | Senior Procurement Officer | 1,491 | 1,500 | 1,600 | 1,600 | 1,600 | 1,600 |
| Invoice Administration | o | Finance Officer & Business Acct | 13,392 | 14,000 | 14,500 | 15,000 | 15,000 | 15,000 |
| Travel Costs | | | | | | | | |
| | p | METP-WG/MOG meetings & SCRAG | 1,000 | 1,200 | 400 | 1,000 | 1,200 | 1,200 |
| Staff Requirement and travel sub total | | | 147,793 | 151,695 | 130,200 | 114,800 | 135,150 | 136,400 |
| Administrative costs | | | | | | | | |
| | q | Cost of Capital | 18,237 | 18,500 | 21,000 | 21,000 | 21,000 | 21,000 |
| | r | Admin charges | 537 | 350 | 650 | 650 | 650 | 650 |
| Total UKMO Costs | | | 222,826 | 222,434 | 189,960 | 180,850 | 204,230 | 196,800 |

TABLE 2: NATS and other SADIS Cost Projections until 2023 (at 2019 prices)

| INVENTORY REF: | | | Actual 2018 | FOO 2019 | Est 2020 | Est 2021 | Est 2022 | Est 2023 |
|----------------|---|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 2 | | NATS Gateway Costs | | | | | | |
| | | Staff Costs | | | | | | |
| | s | Operational Staff | 215,775 | 215,000 | 225,000 | 229,000 | 235,000 | 241,000 |
| | | Engineering Staff | 5,073 | 7,052 | 7,000 | 7,200 | 7,300 | 7,400 |
| | | Administration Staff | 24,289 | 26,946 | 27,800 | 28,500 | 29,300 | 30,000 |
| | | Staff Costs sub total | 245,137 | 248,998 | 259,800 | 264,700 | 271,600 | 278,400 |
| | t | Communications | 0 | 0 | 345 | 345 | 345 | 345 |
| | | Maintenance | 9,689 | 9,600 | 9,700 | 9,700 | 9,700 | 9,700 |
| | | T&RE | 876 | 1,000 | 750 | 1,500 | 1,500 | 1,500 |
| | u | Cost of Depreciated Capital | | | | | | |
| | | Capital Investments | 37,466 | 37,466 | N/A | N/A | N/A | N/A |
| | | Interest at 5.88% | 4,393 | 2,197 | N/A | N/A | N/A | N/A |
| | | Total NATS Gateway Costs | 297,561 | 299,261 | 270,595 | 276,245 | 283,145 | 289,945 |
| 3 | v | CAA Administration Costs | 4,003 | 4,500 | 4,500 | 4,500 | 4,500 | 5,000 |
| 4 | w | ICAO Administration Costs | 34,841 | 41,500 | 41,500 | 42,500 | 43,500 | 44,500 |
| | | TOTAL SADIS COSTS | 559,231 | 567,695 | 506,555 | 504,095 | 535,375 | 536,245 |

- END-