



Report of the 1st Session of the IALA ENG Committee

17 to 21 November 2014

Executive Summary

- 49 members from 24 countries attended the first meeting of the ENG Committee, of which 37 were National Members, 6 were Industrial Members and 4 were Associate Members; 15 members attended for the first time;
- the Committee was reformed into two working groups and the workplan with detailed work register was allocated in accordance with the IALA strategy;
- the Committee considered 57 input papers;
- the Committee produced 13 output documents and 9 working papers including 5 Academy model courses;
- Seamus Doyle was approved as an AtoN expert in the Academy;
- The Work Programme for 2014-2018 was updated;
- Good progress was made in launching the workplan;
- The work of transforming the IALA product line was commenced.

Progress summary table.

Task	Number Tasks	Progress Indicator			Status Overview
		Green	Yellow	Red	
TD#1 – Light and vision physics	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All tasks progressing per plan
TD#2 – AtoN design and maintenance	7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All tasks progressing per plan
TD#3 – Global capacity building and training	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All tasks progressing per plan
TD#4 – Civil engineering and environment	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All tasks progressing per plan
Across all domains	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All tasks progressing per plan

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ENG Committee

1st Session

21 November 2014

Report of the 1st Session of the IALA ENG Committee

GENERAL

The 1st meeting of the AtoN Engineering and Sustainability Committee (ENG) was held from 17 to 21 November 2014 at IALA. The Chairman was Simon Millyard and the Vice Chairman was David Jeffkins. The Secretary for the meeting was Seamus Doyle.

1 INTRODUCTION

1.1 Administration and safety brief

Virginia Butler provided a Safety and Administrative briefing. Attention was drawn to the Committee website and ftp ialashare working arrangements for documents.

1.2 Apologies

The Committee noted apologies from Members who were unable to attend as noted in ANNEX B. The Committee noted the resignation of Errol Joppich and thanked him for his many years of excellent work for IALA.

1.3 Welcome to new members and introductions

The Chairman welcomed all participants to the Committee meeting, especially those attending for the first time. Individual Committee members introduced themselves.



1.4 Approval of the Agenda

The agenda (ENG1-1.4) was adopted.

1.5 Programme for the week

Paper ENG1-1.5 refers. The programme for the week was approved.

2 ENG1 PROGRAMME

2.1 Brief on IALA Strategy

Paper ENG1-2.1.1 refers. Simon Millyard presented in detail the IALA strategy 2014-2018 and referred to the consideration of IALA IGO status.

2.2 Working Group Structure

Paper ENG1-2.2.1 refers. Simon Millyard described the revised IALA Committee structure.

Bob McIntosh introduced the Heritage Forum and noted the overlap in work between the Forum and ENG WG2.

2.3 Review of Work Programme (2014 – 2018)

Paper ENG1-2.3.1 refers. The ENG Committee work plan 2014-2018 was reviewed and amended, Output Paper ENG1-11.1.1 refers. Members were invited to volunteer to host an IALABATT/IALALITE Workshop.

Action

The Secretariat is requested to forward Output Paper ENG1-11.1.1 to Council, PAP and ENG2.

3 REVIEW OF ACTION ITEMS FROM EEP21

Input paper ENG1-3.1 refers. Action items for the IALA Secretariat from EEP21 were reviewed and noted as complete except for action 26 which could not be completed as no templates were available. WG chairs were requested to review Members actions.

4 REVIEW OF INPUT PAPERS

4.1 Input papers

It was noted that all input papers were available on the IALA website. It was noted that the input papers for each Working Group (WG) were identifiable from the document number.

4.2 Identify input papers suitable for uploading to the IALA Wiki

This item was considered under agenda item 7.3.

5 REPORTS FROM OTHER BODIES

5.1 Reports from IALA Council – 56th, 57th, 58th Sessions

The Committee noted the following Council reports:

- 56th Session, Goa, India, 9-13 December 2013, Paper ENG1-5.1.1 refers;
- 57th Session, La Coruna, Spain, 25 May 2014, Paper ENG1-5.1.2 refers;
- 58th Session, La Coruna, Spain, 31 May 2014, Paper ENG1-5.1.3 refers.

5.2 Report from IALA General Assembly / Conference, May 2014

The Committee noted the report of the 18th IALA Conference, paper ENG-5.2.1, and the report of the Pre-18th IALA Conference Seminar Report, paper ENG1-5.2.2.

The Committee reviewed the Conclusions and Actions from the 18th IALA Conference, paper ENG1-5.2.3 refers, and noted the conclusions and actions of relevance to the ENG Committee. Working Group (WG) Chairs were requested to add relevant tasks to their work plans.

5.3 Report of PAP26, October 2013

The Committee noted the report of PAP26, paper ENG1-5.3.1 refers.

5.4 Report of PAP27, March 2014

The Committee noted the report of PAP27, paper ENG1-5.4.1 refers. PAP27 was an extraordinary meeting to consider IALA documentation policy.

5.5 Report of PAP28, October 2014

The Committee noted the report of PAP28, paper ENG1-5.5.1 refers.

5.6 Report of MSC93, May 2014

The Committee noted the report of the IMO MSC 93-22 meeting, paper ENG1-5.6.1 refers.

5.7 Reports from NAV59, September 2013

The Committee noted the report from IMO NAV59, September 2013, paper ENG1-5.7.1 refers.

5.8 Report from e-Navigation Underway 2014

The Committee noted the following e-Navigation Underway 2014 report, Paper ENG1-5.8.1 refers. The next event is in January 2015.

5.9 Report from e-Navigation Underway USA 2014

The Committee noted the e-Nav Underway USA Conference Communique, Paper ENG1-5.9.1 refers.

5.10 Report from NCSR1, July 2014

The Committee noted the report from IMO NCSR1, July 2014, paper ENG1-5.10.1 refers.

5.11 Report from PIANC

The Committee noted a letter regarding setting up the PIANC-PTGCC Working Group n°. 178 on climate change adaptation for maritime and inland port and navigation infrastructure and associated working group terms of reference. Papers ENG1-5.11.1 and ENG1-5.11.2 refer. ENG Committee representative at the forthcoming meeting on 5/6 February 2015 was considered.

6 REPORTS FROM RAPORTEURS

6.1 Developments in Aids to Navigation

There was nothing to report

6.2 Developments in Renewable Energy Sources

There was nothing to report.

6.3 Developments in Battery Technology

There was nothing to report.

6.4 Developments in New Light Sources

Malcolm Nicholson presented a report on developments in new light sources (input paper ENG1-6.4.1refers). He noted the continuing increase in the performance and life of LED light sources with

reduced energy consumption. He noted that electronic drivers and controllers caused more failures than the light sources.

6.5 CIE-IALA Liaison

Malcolm Nicholson reported that he has been requested to co-chair a joint IMO/ CIE working group on colour testing for mariners.

6.6 Developments in AtoN Simulation Systems

Rapporteur report from Jong-Uk Kim describing monitoring developments of simulation techniques for AtoN simulation in Korea was noted, input paper ENG1-6.6.1 refers.

6.7 IALA Dictionary

David Jeffkins presented a demonstration of the IALA Dictionary and urged Committee members to both use and contribute to the Dictionary. It was noted that the IALA Dictionary will defer to definitions from other competent authorities within their area of remit.

6.8 Developments in simulation techniques

There was nothing to report.

6.9 Review of topics for Rapporteurs

Topics for Rapporteur reports were reviewed and additional monitoring topics were proposed. It was noted that SWOT analysis techniques could be used to identify whether IWRAP or PAWSA is the optimum tool in any given situation and that this is an issue for the ARM Committee.

The LINKEDIN discussion on IWRAP and PAWSA was mentioned. The WWA will liaise the ARM and ENG Committees on this issue.

Action

The Secretariat is requested to update the list of Rapporteur items for ENG2.

6.10 IALA Bulletin liaison

David Jeffkins and Marie-Helene Grillet briefed the Committee on the need for contributions to the IALA Bulletin. A Bulletin co-ordinator in each Committee will promote and act as a focal point for Bulletin articles. There are four editions per year in March, June, September and December. Content should be of subjects of particular interest to Bulletin readers which are not covered in IALA Standards, Recommendations and Guidelines. Projects and information about developments in Member's administrations are welcome. It is planned to provide themed editions covering specific areas of interest. Deadline for submission of articles is two months before publication.

7 PRESENTATIONS

Six presentations were made during the opening plenary session and one video was shown. The associated PowerPoint files are available on the IALA Committee website.

7.1 IALA World-Wide Academy (WWA) – Stephen Bennett

The presentation was made by Stephen Bennett, Programme Manager for the IALA WWA and is shown as paper ENG1-7.1.1. He highlighted approval of the post of new full time member of staff based at IALA HQ to manage increased Academy tasks. He emphasised the need for technical and management experts in the Academy. Seamus Doyle was approved as an AtoN expert in the Academy.

7.2 Implementation of structural health monitoring in AtoN telematics – Aivar Usk, Cybernetica

Input paper ENG1-7.2.1 refers. When excited by incident wind or wave energy, “lantern-on-a-stick” pole-like structures tend to vibrate more than solid concrete structures which can lead to vibration induced damage or structural failure. Application of AtoN telematics solutions with sufficient communication data link bandwidth like GSM/GPRS allows cost efficient structural health monitoring (SHM) of AtoN structures. The presentation introduced an ongoing SHM project TelFiCon at the Norwegian Coastal Administration that provided interesting data on wind and wave induced vibrations and natural frequencies obtained by triaxial acceleration measurement on five operational fixed AtoN types including steel beacons and composite materials lighthouses. A collision with a vessel resulting in natural frequency shift was analysed. Contractor supplied data analysis service is available or the analysis software can be purchased by users. The system has potential for wave monitoring applications if the sensors are fitted on a wave rider platform. Cost and energy consumption are minimal as the sensors are fitted in the lantern.

7.3 IALA Wiki & its use in committee - David Jeffkins

David Jeffkins introduced the IALA Wiki and presented a short demonstration of its use. It was noted that ENG documents have been provided on the Wiki. ENG Committee members were encouraged to use the Wiki. It was noted that updating of the IALA Navguide will be conducted on the IALA Wiki.

Committee Members were requested to notify the Vice Chairman of any papers considered to be suitable for uploading to the IALA Wiki.

Actions

David Jeffkins is requested to investigate if the Wiki is a suitable means of retaining software programmes information on the Wiki.

Committee members are requested to identify and bring technical information relevant to the ENG meetings in a format suitable for uploading to the Wiki.

7.4 Recent AtoN modifications and upgrade projects within the AMSA network - Greg Hansen

Greg Hansen made a presentation on recent AtoN modifications and upgrade projects within the AMSA network, input paper ENG1-7.4.1 refers. The replacement of 63 steel buoys with polyethylene buoys is being carried out as part of the maintenance contract. Four case studies, including a Duoguard cathodic protection system with a 50 year life for control of degradation of concrete structures, were described.

7.5 Fixed Flashing Lights Viewing Trial - Malcolm Nicholson

Malcolm Nicholson described fixed and flashing light trials conducted over a 0.75NM range to assess the effect of a fixed light, input paper 7.5.1 refers. The use of a fixed light as part of a flashing light character can enhance its conspicuity at short range. The contrast between the fixed component and the flashing component has to be sufficient to distinguish between them. He recommended that, for Authorities wishing to utilise the Fixed and Flashing (FFI) character, the fixed component should be 1% of the peak intensity of the flashing character.

7.6 Developments in Fuel Cells - Peter Dobson

Simon Millyard and Peter Dobson described the use of a 110 watt, 24 volt methanol fuel cell to provide power for the systems on a lightfloat during a winter of solar power supply risk arising from deteriorating solar batteries, input papers ENG1-7.6.1 and ENG1-7.6.2 refer. Fuel cell charging of the batteries was automatically triggered at a battery voltage of 24 volts and the fuel cell charged the batteries for ten hours per day, supplying 7 Wh/d of energy. Installation cost was

€15,000. Special ventilation and fire protection were not required. Fuel cell membrane is approximately 6000 – 8000 hours and the system ran for 600 – 800 hours during one winter.

8 ESTABLISH WORKING GROUPS

8.1 Establishing working groups

Two working groups were established, as outlined below:

Working Group	Working Group Chair	Working Group Vice Chair
WG 1 Visual & Physical AtoN	Malcolm Nicholson	Frank Hermann
WG 2 Technical Knowledge & Sustainability	Adrian Wilkins (standing in for Adam Hay)	Mariano Marpegan

8.2 Working Groups Terms of Reference

Terms of reference for the Working Groups, paper ENG1-2.2.2, were reviewed and agreed, working paper ENG1-11.2.1 refers.

8.3 Working Groups Task Register

The draft register of ENG Work Programme Tasks for 2014-18, ENG1-2.3.3, was reviewed and amended to Output paper ENG1-11.1.2.

Action

The Secretariat is requested to forward the Terms of Reference for the ENG Working Groups, ENG1-11.1.2 to the PAP and ENG2.

The Secretariat is requested to forward the ENG Work Programme Tasks for 2014-2018, ENG1-11.2.1 to ENG2.

9 WORKING GROUP 1 – VISUAL & PHYSICAL ATON

9.1 Proposal for modification of Guideline No. 1078 on the use of Aids to Navigation in the design of fairways

Input paper ENG1-9.4.3 was considered and the Committee had no objection ‘in principle’ to the inclusion of the amendment, but would request that further ‘technical’ information be provided to give guidance on the design of the light with regard to luminous intensity and luminous intensity distribution for inclusion in the appropriate IALA document.

Action Item

The Secretariat is requested to forward the liaison note ENG1-11.1.9 and paper ENG1-11.1.10 to the ARM Committee for their consideration.

9.2 Guideline 1041 on Sector Lights (Task 5.1.10)

The Committee reviewed input paper ENG1-9.4.1, draft revised Guideline 1041 on sector lights. It is envisaged that this document can be finalised at ENG3 with intersessional work.

Action Item

Malcolm Nicholson, Frank Hermann, Fernando Romero and Aivar Usk are requested to work on the Guideline 1041, ENG1-11.2.5, inter-sessionally and submit a revised input paper to ENG2.

9.3 Guideline 1061 On Illumination of structures (Task 5.1.11)

The Committee reviewed input paper ENG1-9.4.2 draft guideline 1061 on illumination of structures. Working paper ENG1-11.2.8 refers.

Action Item

The Secretariat is requested to forward revised Guideline 1061, working paper ENG1.11.2.8, to ENG2.

9.4 Review and Update E200 on Marine Signal Lights (Task 5.1.3)

The key milestones for updating Recommendation E200 were agreed and recorded on the Task Register.

9.5 Update Recommendation E-106 for the use of retro-reflecting material on aids to navigation marks within the IALA MBS (Task 5.1.4)

The key milestones for updating this recommendation were agreed and recorded on the Task Register.

9.6 Review and update Recommendation E-108 Ed 2 (Task 5.1.5)

The key milestones for updating this recommendation were agreed and recorded on the Task Register.

9.7 Review E-110 for the Rhythmic Characters on Aids to Navigation (Task 5.1.6)

The key milestones for updating this recommendation were agreed and recorded on the Task Register.

9.8 Update E-111 for Port Traffic Signals (5.1.7)

The key milestones for updating this recommendation were agreed and recorded on the Task Register.

9.9 Update Recommendation E-112 for Leading Lines and Guideline 1023 for the design of leading lines (Task 5.1.8)

The Committee reviewed input paper ENG1-9.4.6 and considered that the minor ambiguity between Guidelines 1023 and 1094 with regard to the proportional dimensions of day boards for leading lines would not have a significant impact on the range. The Committee will review the recommended proportions as experienced by members when revising Guideline 1023 on Leading Lines at ENG4.

The key milestones for updating this Recommendation E-112 were agreed and recorded on the Task Register.

Action Item

The Secretariat is requested to forward input paper ENG1.9.4.6 to ENG4 for consideration (Task 5.1.8).

9.10 Merge and update Guideline 1043 on light sources, Guideline 1048 on LED Technologies and Guideline 1049 on the use of modern light sources in traditional optics (Task 5.1.9)

Input paper ENG1-9.4.5 refers. The Committee sought information from Korea on the possible causes of LED degradation. When sufficient information is gathered on LED degradation IALA Guideline 1043 on light sources should be updated with the new information.

The key milestones for developing this new guideline were agreed and recorded on the Task Register.

Action Item

Ju-Seop Han is requested to provide more information regarding the cause of LED degradation and conclusions from the trials as an input to ENG2

ENG Committee members are requested to provide details of tests carried out on degradation of LED lanterns in service, and any conclusions drawn, as information papers to ENG2 for input to the revision of Guideline 1043 on Light Sources, Guideline 1048 on LED Technologies and Guideline 1049 on the use of modern light sources in traditional optics.

The Secretariat is requested to forward paper ENG1-9.4.5 as an information paper to the appropriate place on the IALA Wiki.

9.11 Update Guideline 1065 on Aids to Navigation signal light beam vertical divergence (Task 5.1.12)

The key milestones for updating this guideline were agreed and recorded on the Task Register.

9.12 Review and update of Guideline 1073 on Conspicuity of AtoN at Night (Task 5.1.13)

The key milestones for updating this guideline were agreed and recorded on the Task Register.

9.13 Develop Guidelines on Marine Signalling - New Guidelines (Task 1.1.1)**9.14 Develop guidance on the selection of rhythmic characters including Guideline 1069 Synchronisation (Task 1.1.2)**

Input paper ENG1-9.4.4 refers. The Committee considered that this information would be a good input to a proposed new guideline on the selection of rhythmic characters.

The key milestones for developing this new guideline were agreed and recorded on the Task Register.

Action Item

The Secretariat is requested to forward input paper ENG1.11.2.9 to ENG2 for consideration when developing new guidance on the selection of rhythmic characters.

Jorgen Royal Petersen is requested to provide a presentation to ENG2 on the Danish national AtoN character data base.

Sigge Gustafsson, Yves-Marie Blanchard and Frank Hermann are requested to provide information about their national AtoN character lists to ENG 2.

Malcolm Nicholson is requested to contact the US Coast Guard with regard to their AtoN light character list and input to ENG2.

9.15 Develop guidance on the Methods for the activation and control of AtoNs lights, Guideline 1038 (task 1.1.3)

The key milestones for developing this new guideline were agreed and recorded on the Task Register.

Action Item

Committee Members are requested to provide inputs papers to ENG2 on any of the topics mentioned in the key milestones for task 1.1.3.

9.16 Potential Standards (Task 5.2.1)

No standards are identified at this time.

9.17 S100 population with AtoN data (Task 2.5.1)

None at this time.

9.18 Workshop & Seminars

No work was carried out on this item.

9.19 New developments

None at this time.

9.20 Navguide updates (Task 5.1.1)

The key milestones for updating the Navguide were agreed and recorded on the Task Register.

10 WORKING GROUP 2 – TECHNICAL KNOWLEDGE & SUSTAINABILITY

10.1 Navguide Update (Task 1.5.3)

Request from the ARM Committee in relation to updating of the Navguide is awaited. Committee Members are requested to become familiar with the Navguide. New pictures and illustrations would be particularly useful.

10.2 Workshop on lights and batteries (Task 1.5.4)

The concept of a workshop on lights and batteries (IALABATT/ IALALITE) was discussed and the most likely date for this event was considered to be in 2017 in conjunction with an ENG Committee meeting. Members are requested to consider hosting such an event.

Action Item

Committee members are requested to consider hosting the IALABATT/ IALALITE workshop in 2017.

Simon Millyard is requested to progress the arrangement of host administration for the IALABATT / IALALITE workshop.

10.3 Develop further guidance on Plastic Buoys, Systems & Sensors (Task 2.1.1)

There is a significant amount of new information on plastic materials used in buoy construction and recent work on moorings for use in environmentally sensitive areas. The Committee reviewed the scope of this work item and identified the guidelines concerned and proposed changes, Working Paper ENG1-11.2.2 refers.

The Mobilis / Calmar mooring software package has been fully updated to incorporate different mooring drag factors, water density and the associated descriptive handbook is now in English, German, French and Spanish. Details of these improvements contained in version 0.2.3 are summarised in paper ENG1-11.2.7. A decision is needed as to if this software and supporting documentation shall reside on the Wiki.

Action Item

The IALA Secretariat is requested to forward working paper ENG1-11.2.7 to ENG2

Committee members are requested to review the working paper ENG1-11.2.2 and relevant guidelines intersessionally.

The Secretariat is requested to update IALA links to the Mobilis / Calmar mooring software.

10.4 Engineering guidance on the implementation of e-Navigation systems. (Task 2.1.2)

Guidance is awaited from the ENAV Committee on this subject. Trinity House and AMSA provided some examples of problems experience of mounting AIS AtoN aerial systems on buoys.

Action Item

Committee members are requested to submit input papers regarding their experience of incorporating AIS AtoN systems into AtoN to ENG2.

10.5 Develop guidance on Sustainable AtoN design & Maintenance. (Task 2.2.1)

This will be the subject of a new guideline and the existing Guideline 1036 (environmental considerations) will form a major part of this work along with the relevant aspects of Guideline 1077 (Maintenance of AtoN).

Action Item

Committee members are requested to review the content of the existing Guideline 1036 (environmental considerations) and Guideline 1077 (Maintenance of AtoN) with a view to creating a new guideline and submit proposals to ENG2.

10.6 Develop guidance on the commissioning of AtoN equipment and systems and engineering audits. (Task 2.2.2)

A new Guideline on commissioning and engineering auditing of AtoN equipment and systems was proposed. Trinity House and the German Federal Waterways Administration agreed to provide examples of their existing documentation on commissioning systems.

Action Item

Committee members are requested to bring example of their procedures and documentation regarding commissioning and engineering auditing of AtoN equipment and systems to ENG2.

10.7 Develop guidance on AtoN design & maintenance for hot climates (Task 2.3.1).

Input document ENG1-10.3.2 refers.

Guidance on AtoN design & maintenance for hot climates will be an output from the Extreme Heat Workshop referenced in task 2.3.2.

10.8 Workshop on Aton delivery and maintenance in Extreme Heat (Task 2.3.2)

Input document ENG1-10.3.1 refers. Appropriate existing guidelines that could be expanded at this workshop were identified. A workshop date of late 2016 at a venue in the Gulf Region has been proposed. It was noted that Industrial Members will need sufficient notice of this workshop and details of available exhibition space.

Action

Simon Millyard is requested to progress the arrangement of a host administration for the Extreme Heat workshop.

10.9 Populate the S100 registry for relevant AtoN classes (Task 2.5.1)

The Committee needs further technical information on their contribution to this task.

10.10 Review of IALA documents (Task 3.1.2)

Input document ENG1-2.3.2 refers. There are at least 27 Guidelines and Recommendation under consideration by working group 2. The scope of the work was discussed and it was considered that it will be appropriate to have new recommendations that will direct users to the particular subject area of interest within the guidelines. As a pointer to information sources, this would be valuable to States working with the Academy.

Existing documents that will be relevant to new task items were identified and are summarised in the following:

- power systems, working paper ENG1-11.2.3 refers;
- buoys and moorings, working paper ENG1-11.2.2 refers.

Action Item

The IALA Secretariat is requested to forward working paper ENG1-11.2.2 and ENG1-11.2.3 to ENG2.

Committee members are requested to review working papers ENG1-11.2.2 and ENG1-11.2.3 intersessionally and research previous work on radar reflectors.

Simon Millyard is requested to submit input to the PAP in relation to the proposal to use Recommendations as pointers to information sources.

10.11 Identify current documents as potential Standards, Recommendations, Guidelines & Manuals (Task 3.1.4)

Recommendation E109 – Range of fog signals was identified for revision to provide a single definition of audible signal range, as was proposed for the Navguide.

Action Item

The IALA Secretariat is requested to forward the proposed modification to the Navguide on the specification of audible signals from EEP21 to ARM, ENG1-11.1.11 refers.

10.12 Support the WWA in updating Recommendations, Guidelines and model courses on standards for training and certification of AtoN personnel as training courses are undertaken. (Task 3.2.1)

Input documents ENG1-10.5.1, ENG1-10.10.1, ENG1-10.10.3, ENG1-10.10.4, ENG1-10.10.5, ENG1-10.10.6 and ENG1-10.10.2 were reviewed and amended for submission to the Academy Board for approval.

Action Item

The IALA Secretariat is requested to forward output papers ENG1-11.1.3, ENG1-11.1.4, ENG1-11.1.5, ENG1-11.1.6, ENG1-11.1.7 to the WWA Board for approval.

The IALA Secretariat is requested to forward output papers ENG1-11.1.8 and ENG1-11.1.12 to the ARM Committee for review.

The Secretariat is requested to forward output paper ENG1-11.1.8, draft Recommendation E-141 Ed3 Standards for Training and Certification of AtoN Personnel, to Council following review by the ARM Committee.

10.13 Develop the IALA Wiki (Task 3.3.1)

It was considered that the Wiki may provide the ideal vehicle to keep case studies and presentations. It is apparent that there will be more software design programs as part of guidelines, e.g. mooring design, solar sizing, battery sizing, etc. and the Wiki may to be a suitable storage place for such software.

10.14 Develop guidance on the use of heritage lighthouses for modern AtoN equipment & systems. (Task 4.1.1)

A new Guideline on the use of heritage lighthouses for modern AtoN equipment & systems should include the use of new lamps in traditional optics and the replacement of mercury floats with modern bearings. It is considered that a definition of heritage lighthouse will be useful.

Action Item

Committee members are requested to consider the appropriate content for a Guideline on the use of heritage lighthouses for modern AtoN equipment & systems.

The Heritage Forum is requested to provide the definition of heritage lighthouse.

10.15 Develop guidance on AtoN structure protection systems & repair techniques (Task 4.1.2)

A review of IALA documents is summarised in ENG1-11.2.4.

A proposal a new Guideline on maintenance of AtoN structures was drafted which includes the incorporation and superseding of existing guidelines, working paper ENG1-11.2.6 refers.

Action Item

The IALA Secretariat is requested to forward working papers ENG1-11.2.4 and ENG1-11.2.6 to ENG2.

Committee members are requested to review working papers ENG1-11.2.4 and ENG1-11.2.6 and consider the appropriate content for the new guideline on maintenance of AtoN structures.

11 REVIEW OF OUTPUT AND WORKING PAPERS

The draft IALA document structure, PAP28-14.2 was reviewed. It was proposed that Recommendations should be more overarching in structure and could be useful as an index of sources of IALA information on relevant topics.

The WG Terms of Reference, ENG1-2.2.2 was reviewed and amended, output paper ENG1-11.1.2 refers.

Following a review of the IALA Wiki, it was agreed that the ENG front page on the Wiki should be amended to make the Categories more intuitive.

Output papers were reviewed and their disposition agreed as indicated in ANNEX E.

A liaison note was received from the IALA Heritage Forum first meeting, which was held in conjunction with ENG 1 on 18 and 19 November 2014, ENG1-5.12.1 refers.

Action

David Jeffkins is requested to amend the IALA Wiki ENG front page categories to the agreed format.

The Secretariat is request to forward output paper ENG1-11.1.2 to the PAP and ENG2.

12 ANY OTHER BUSINESS

There was no additional business.

13 REVIEW OF SESSION REPORT

The report of the meeting (ENG1-13.1) was reviewed and approved by the Committee.

Action item

The Secretariat is requested to forward the ENG1 Committee report (ENG1-13.1) to Council to note.

14 DATE AND VENUE OF NEXT MEETING

ENG2 is expected to meet on 18 – 22 May 2015 at IALA HQ.

15 CLOSING OF THE MEETING

The Chairman thanked all Committee Members for their contribution and hard work during the week and noted the active participation of the new members. He acknowledged the enthusiastic way in which a heavy workload had been tackled. He thanked the Vice Chair, Secretary, WG Chairs and Vice Chairs and Adrian Wilkins for their support and asked that the Committee's gratitude be passed to the Secretariat for their cheerful and courteous support.

He concluded by saying that all were invited to ENG2, wished everyone a safe journey home and hoped to see everyone at the next meeting.

16 LIST OF ANNEXES

1 Agenda

A copy of the agenda is at ANNEX A.

2 Participants

A list of participants is at ANNEX B.

3 Working Group Participants

A list of working group participants is at ANNEX C.

4 Input Papers

A list of input papers is at ANNEX D.

5 Output and Working papers

A list of output and working papers is at ANNEX E.

6 Work programme progress

A summary of progress in completing the work programme and progress with deliverables is at ANNEX F.

7 Action Items

A list of action items is at ANNEX G.

ANNEX A AGENDA**1st Meeting of the AtoN Engineering and Sustainability Committee
(ENG1)**

The 1st meeting of the **AtoN Engineering and Sustainability Committee** (ENG1) will be held from 17 – 21 November, 2014 at IALA, St Germain en Laye, France.

The opening plenary will commence at 1300 on Monday 17 November and the closing plenary will end at approximately 1300 on Friday, 21 November.

Committee Chair, Vice-Chair and Working Group Chairpersons are requested to meet at 0900 on Monday, 17 November.

AGENDA

1. Introduction
 - 1.1. Administration and safety brief
 - 1.2. Apologies
 - 1.3. Welcome to new members and introductions
 - 1.4. Approval of the agenda
 - 1.5. Programme for the week (work & social)
2. ENG1 Programme
 - 2.1. Brief on IALA Strategy Simon Millyard
 - 2.2. Working Group Structure Simon Millyard
 - 2.3. Review of Work Programme (2014 – 2018)
3. Review of action items from EEP21
4. Review of input papers
 - 4.1. Input papers
 - 4.2. Identify input papers suitable for uploading to the IALA Wiki
5. Reports from other bodies:
 - 5.1. Report from IALA Council – 56th, 57th 58th Sessions
 - 5.2. Report from IALA General Assembly / Conference, May 2014
 - 5.3. Report from PAP26, October 2013
 - 5.4. Report from PAP27, March 2014
 - 5.5. Report from PAP28, October 2014
 - 5.6. Report from MSC93, May 2014
 - 5.7. Report from NAV59, September 2013
 - 5.8. Report from e-Navigation Underway 2014
 - 5.9. Report from e-Navigation Underway USA 2014
 - 5.10. Report of NCSR1, July 2014
 - 5.11. Report from PIANC
6. Reports from Rapporteurs:
 - 6.1. Developments in Aids to Navigation

6.2.	Developments in Renewable Energy Sources	
6.3.	Developments in Battery Technology	Jonas Lindberg
6.4.	Developments in New Light Sources	Malcolm Nicholson
6.5.	CIE-IALA Liaison	Malcolm Nicholson
6.6.	Developments in AtoN Simulation Systems	Jong-Uk Kim
6.7.	IALA Dictionary	David Jeffkins
6.8.	Developments in simulation techniques	Dr Fang
6.9.	Review of topics for Rapporteurs	Simon Millyard
6.10.	IALA Bulletin liaison	David
	Jeffkins	

7. Presentations (15 minutes duration)

7.1.	Brief on WWA	Stephen Bennett
7.2.	Implementation of structural health monitoring in AtoN telematics	Aivar Usk
7.3.	IALA Wiki & its use in committee	David Jeffkins
7.4.	Recent AtoN modifications and upgrade projects within the AMSA network	Greg Hansen
7.5.	Fixed Flashing Lights Viewing Trial	Malcolm Nicholson
7.6.	Developments in Fuel Cells	Peter Dobson

8. Establish Working Groups

8.1.	Plenary session to establish WGs
8.2.	Working Groups Terms of Reference
8.3.	Working Groups Task Register

9. WG#1 – Visual & Physical AtoN

9.1.	Review of IALA documents
9.2.	Potential Standards
9.3.	S100 population with AtoN data
9.4.	Marine signalling
9.5.	Plastic buoys, Systems & Sensors
9.6.	Workshops & Seminars
9.7.	New developments
9.8.	Navguide updates

10. WG#2 – Knowledge & Sustainability

10.1.	Review of IALA documents
10.2.	Potential Standards
10.3.	Guidance on extreme environment AtoN engineering
10.4.	Sustainable AtoN design
10.5.	Maintenance & use of heritage Lighthouses for modern AtoN equipment
10.6.	Guidance on structural protection & repair
10.7.	Protection of the Marine Environment
10.8.	Safety of personnel

- 10.9. Commissioning & Audit
- 10.10. WWA Support
- 10.11. Workshops and Seminars
- 10.12. New developments
- 10.13. eNav implementation
- 11. Review of output and working papers
 - 11.1. Output Papers
 - 11.2. Working Papers
- 12. Any other business
- 13. Review of session report
- 14. Date and venue of next meeting
- 15. Close of meeting

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12	Aivar USK	Cybernetica As / Estonia
13	Murray WADDELL	Northern Lighthouse Board / Scotland
14	K.S. YIP	Hong Kong Marine Department / China
15	Andrew ZELLER	Tideland Signal Corporation / USA
16	SHEN Zhijiang	Tianjin Maritime Safety Administration / China

Working Group 2 Technical Knowledge & Sustainability

	Name	Organisation / Country
1	Adrian WILKINS (Chair) Standing in for Adam Hay	Pharos Marine / UK
2	Mariano Luis MARPEGAN	Hidrovia SA / Argentina
3	Michel COUSQUER	CEREMA / France
4	Ronan AUTRET	CEREMA / France
5	Joaquim PESSOA	Portuguese Lighthouse Authority / Portugal
6	Jose Carlos DIEZ	Puertos del Estado / Spain
7	CHEN Jiali	Maritime Safety Association / China
8	Greg HANSEN	Australian Maritime Safety Authority / Australia
9	Joel TOURBOT	Inter-regional Maritime Directorate / France
10	Eoghan LEHANE	Commissioners of Irish Lights / Ireland
11	Caroline PISARZ-VAN DEN HEUVEL	Ministry of Ecology, Sustainable Development and Energy / France
12	Philippe RENAUDIN	CEREMA / France
13	Amadou NDIAYE	Port Authority of Dakar / Senegal
14	Stephanie VERBIT	Canadian Coast Guard / Canada
15	Peter SCHNEIDER	German Federal Waterways & Shipping Administration / Germany
16	Jörg UNTERDERWEIDE	German Federal Waterways & Shipping Administration / Germany
17	Peter DOBSON	Trinity House Lighthouse Service / UK
18	Leif Arne LARSEN	Norwegian Coastal Administration / Norway
19	Egbert van der WEIDE	Rijkswaterstaat (RWS), Traffic and Water Management / Germany

ANNEX D LIST OF INPUT PAPERS

All papers were posted to the [Committee website](#)

Number	Meeting	Agenda Item	Title / Author (if required)	Source	Presented by / WG
	ENG1- 1.3.1		Presentation Welcome to IALA_ENG SM	Simon Millyard	Simon Millyard
1	ENG1- 1.4		Draft Agenda (20141114)	IALA Sec	Simon Millyard
2	ENG1- 1.5		Programme for the week	IALA Sec	Simon Millyard
3	ENG1- 2.1.1		IALA Strategic Vision 2012-2026	IALA Sec	Simon Millyard
4	ENG1- 2.2.1		IALA Committee Structure 2014-201	IALA Sec	Simon Millyard
5	ENG1- 2.2.2		ENG Committee WG Terms of Reference (20141114)	Simon Millyard	Simon Millyard
6	ENG1- 2.2.3		IALA Strategy & ENG WG Structure - ENG1	IALA Sec	Simon Millyard
7	ENG1- 2.3.1		ENG Committee Work Programme 2014-2018	Simon Millyard	Simon Millyard
8	ENG1- 2.3.2		ENG Document Ownership Master Record	EEP21	Simon Millyard
9	ENG1- 2.3.3		ENG Work Programme Task Register 2014-18 (20141023)	Simon Millyard	Simon Millyard
10	ENG1- 2.3.4		EEP21 Work Program Ideas (EEP21-14.2.14)	EEP21	Simon Millyard
11	ENG1- 3.1		Action Items from EEP21	EEP21	Seamus Doyle
12	ENG1- 3.2		Report EEP21	EEP21	Simon Millyard
13	ENG1- 4.2		Input paper Committee template July 2014	IALA Sec	All
14	ENG1- 5.1.1		Council 56 Report 2013-12-13	IALA Sec	Seamus Doyle
15	ENG1- 5.1.2		Council 57 Final Report	IALA Sec	Seamus Doyle
16	ENG1- 5.1.3		Council 58 Final Report	IALA Sec	Seamus Doyle
17	ENG1- 5.2.1		Report - 18th IALA Conference	IALA Sec	Seamus Doyle
18	ENG1- 5.2.2		Pre-18th IALA Conference Seminar Report final	IALA Sec	Seamus Doyle
19	ENG1- 5.2.3		18th IALA Conference Conclusions and Actions (PAP28-14.3)	PAP28	Seamus Doyle
20	ENG1- 5.3.1		Report of PAP26	IALA Sec	Seamus

Number	Meeting	Agenda Item	Title / Author (if required)	Source	Presented by / WG
					Doyle
21	ENG1-	5.4.1	Report of PAP27	IALA Sec	Seamus Doyle
22	ENG1-	5.5.1	Report of PAP28 (PAP28-14.1)	PAP28	Seamus Doyle
23	ENG1-	5.6.1	MSC 93-22 - Report Of The Maritime Safety Committee meeting	IMO	Seamus Doyle
24	ENG1-	5.7.1	IMO NAV 59-20 - Report To The Maritime Safety Committee (Secretariat)	IMO	Seamus Doyle
25	ENG1-	5.8.1	e-Navigation Underway 2014 report	IALA Sec	Seamus Doyle
26	ENG1-	5.9.1	e-Nav Underway USA Conference Communique v1.6	Bill Cairns	Seamus Doyle
27	ENG1-	5.10.1	2014-07-04 MDC report of IMO NCSR1	IALA Sec	Seamus Doyle
28	ENG1-	5.11.1	PIANC-PTGCC EnviCom Working Group 178 invitation letter	Simon Millyard	Simon Millyard
29	ENG1-	5.11.2	PIANC EnviCom WG 178 Terms of Ref	Simon Millyard	Simon Millyard
30	ENG1-	5.12.1	Liaison note from Heritage Forum first meeting	HF	Bob McIntosh
31	ENG1-	6.4.1	Developments in New Light Sources Rapporteur report ENG1	Malcolm Nicholson	Malcolm Nicholson
32	ENG1-	6.6.1	Rapporteur report on Developments in AtoN Simulation Systems	Jong-Uk Kim	Jong-Uk Kim
33	ENG1-	7.1.1	Presentation IALA WWA brief Nov 14 Rev 0	Stephen Bennett	Stephen Bennett
34	ENG1-	7.2.1	AtoN telematics for SHM IALA ENG1 20141117	Aivar Usk	Aivar Usk
35	ENG1-	7.4.1	Recent modifications and upgrade projects within the AMSA network	Greg Hanson	Greg Hanson
36	ENG1-	7.5.1	Presentation Fixed Flashing Lights Viewing Trial	Malcolm Nicholson	Malcolm Nicholson
37	ENG1-	7.6.1	Fuel Cells	Simon Millyard	Simon Millyard
38	ENG1-	7.6.2	Lightfloat LF2 Fuel Cells	Peter Dobson	Peter Dobson
39	ENG1-	9.4.1	Draft revised Guideline 1041 on Sector Lights	EEP21	WG1
40	ENG1-	9.4.2	Draft Guideline 1061 on the illumination of structures	EEP21	WG1
41	ENG1-	9.4.3	Proposal amendment IALA Guideline 1078 - Netherlands	Pieter Paap	WG1
42	ENG1-	9.4.4	Trials and Implementation of the Fixed and Flashing Rhythmic Character on Estonian AtoN 20141110	Aivar Usk	WG1
43	ENG1-	9.4.5	Report-Research of degradation	Ju-Seop	WG1

Number	Meeting	Agenda Item	Title / Author (if required)	Source	Presented by / WG
			characteristics of LED lanterns	Han	
44	ENG1- 9.4.6		Need for harmonizing requirements to leading line dayboard dimensions in IALA documentation (Guideline 1023)	Aivar Usk	WG1
45	ENG1- 10.3.1		Provision of AtoNs in hot climatic conditions MENAS - input paper note- MENAS	Shaheen H Mirza	WG2
46	ENG1- 10.3.2		Provision of AtoNs in Extremely Hot Climatic Conditions-MENAS_FINAL	Shaheen H Mirza	WG2
47	ENG1- 10.5.1		Draft L1 Model course IALA WWA.L1.5 on Lighthouse Decommissioning Rev 0 Oct 14	Stephen Bennett	WG2
48	ENG1- 10.10.1		Input paper to ENG-1 E141 Ed 3 shgb	WWA	WG2
49	ENG1- 10.10.2		E-141 Ed3 Standards for Training and Certification of AtoN Personnel Draft Edition 3	WWA	WG2
50	ENG1- 10.10.3		Model Course L2.1.7 Buoy Moorings Ed 2 Dec 2014	WWA	WG2
51	ENG1- 10.10.4		Model Course L2.2.1 DC Power Systems Ed 2 Dec 2014	WWA	WG2
52	ENG1- 10.10.5		Model Course L2.2.2 Primary and Secondary Battery Maintenance Ed 2 Dec 2014	WWA	WG2
53	ENG1- 10.10.6		Model Course L2.2.3 Photovoltaic (Solar panel) systems and maintenance Ed 2 Dec 2014	WWA	WG2
54	ENG1- 10.13.1		(e-NAV14-17.2.3.2) Information Paper on Technical Guidelines for impenetation of VDES v1	e-NAV14	WG2
55	ENG1- 10.13.2		(e-NAV14-17.1.3.1) Information paper on vdes v2	e-NAV14	WG2
56	ENG1- 10.13.3		Liaison note to all Committees and PAP on IALA involvement with IMO SIP Tasks (ENAV15-14.1.4)	ENAV15	WG2
57	ENG1- 10.13.4		Liaison note to Committees and PAP - Proposed Product Specification Numbering Scheme for IALA Domains (ENAV15-14.1.7)	ENAV15	WG2 & WG1

ANNEX E LIST OF OUTPUT AND WORKING PAPERS

Output documents are submitted for review by a body other than the Committee initiating the document.

	Number	Title	Status
1	ENG1- 11.1.1	ENG Committee Workplan 2014-18 20141121	To Council To PAP29 To ENG2
2	ENG1- 11.1.2	ENG Committee WG Terms of Reference 20141121	To PAP29 To ENG2
3	ENG1- 11.1.3	Draft L1 Model course IALA WWA.L1.5 on Historic Lighthouse Projects 20141120	To WWA for approval
4	ENG1- 11.1.4	draft L2.1.7 Buoy Moorings Ed 2 Dec 2014 20141120	To WWA for approval
5	ENG1- 11.1.5	L2.2.1 DC Power Systems Ed 2 Dec 2014 20141120	To WWA for approval
6	ENG1- 11.1.6	L2.2.2 Primary and Secondary Battery Maintenance Ed 2 20141120	To WWA for approval
7	ENG1- 11.1.7	L2.2.3 Photovoltaic (Solar panel) systems and maintenance Ed 2 20141120	To WWA for approval
8	ENG1- 11.1.8	draft Recommendation E-141 Ed3 Standards for Training and Certification of AtoN Personnel 20141119	To ARM for review To Council 60
9	ENG1- 11.1.9	Liaison Note to ARM1 from ENG1 re Guideline 1078	To ARM for comment
10	ENG1- 11.1.10	Proposal amendment IALA Guideline 1078 - Netherlands	To ARM for review
11	ENG1- 11.1.11	Liaison note to ANM about the Navguide audible signal update	To ARM for action
12	ENG1- 11.1.12	Liaison note from ENG1 to ARM Committee re update of Rec E141	To ARM for review
13	ENG1- 13.1	Report ENAV15	To Council for noting

Working Papers are documents that will remain within the committee for further review.

	Number	Title	Status
1	ENG1- 11.2.1	ENG Work Programme Task Register 2014-18 20141121	To ENG2
2	ENG1- 11.2.2	WG2 Review of IALA documents working paper - working report buoys and moorings 2014120	To ENG2

	Number	Title	Status
3	ENG1- 11.2.3	WG2 Review of IALA documents working paper- Power Systems 20141120	To ENG2
4	ENG1- 11.2.4	WG2 Review of IALA documents working paper 20141120	To ENG2
5	ENG1- 11.2.5	WG1 draft revised Guideline 1041 on sector lights 20141119	To ENG2
6	ENG1- 11.2.6	WG2 Proposed new Guideline on Maintenance of AtoN structures 20141120	To ENG2
7	ENG1- 11.2.7	WG2 Amendment of CALMAR mooring calculation software	To ENG2
8	ENG1- 11.2.8	WG1 draft Guideline 1061 on the illumination of structures	To ENG2
9	ENG1- 11.2.9	WG1 Trials and Implementation of the Fixed and Flashing Rhythmic Character on Estonian AtoN 20141110	To ENG2

ANNEX F WORK PROGRAMME – REVIEW OF PROGRESS WITH DELIVERABLES AT ENG1

Task	Start Session	Planned End Session	Revised End Session	Progress Indicator			Status Overview
				Green	Yellow	Red	
WG1 – Visual & Physical AtoN							
5.1.2 Review of IALA documents	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.3 Review and Update E200 On Marine Signal Lights	3	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.4 Update E-106 For the use of retro-reflecting material on aids to navigation marks within the IALA Maritime Buoyage System	4	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.5 Review and Update E108 Ed 2 For the Surface Colours used as visual signals on aids to navigation	6	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.6 Review of IALA Recommendation E-110 for the Rhythmic Characters of Lights on Aids to Navigation (2012)	6	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.7 Update Recommendation E-111 For port traffic signals	4	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.8 Update E-112 For Leading Lights and 1023 for the design of leading lights	4	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.9 Merge and update 1043 On Light Sources and 1048 On LED Technologies and 1049 On The Use of Modern Light Sources in Traditional Lighthouses	2	4		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.10 Update 1041 On Sector Lights	1	3		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.11 Update 1061 Illumination of Structures	1	2		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.12 Update 1065 On Aids to Navigation Signal Light Beam Vertical Divergence	6	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.13 Review and Update of Guideline 1073 on Conspicuity of AtoN at Night	5	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.1.1 Produce a Guideline on Marine Signalling	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.1.2 Develop guidance on the selection of rhythmic characters including 1069 Synchronisation	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.1.3 Update / Replace 1038 On Ambient Lights Levels	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.1 Update the Navguide as requested by ARM Committee	5	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.2.1 Identify current documents as potential Standards, Recommendations, Guidelines & Manuals.	5	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WG2 – Technical Knowledge & Sustainability							
1.5.2. Workshop on Lights and Batteries – IALABATT/IALALITE	1	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
2.1.1. Develop further guidance on plastic buoys, systems & sensors	1	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
2.1.2 Engineering guidance on the implementation of e-Navigation systems	2	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Task		Start	Planned	Revised	Progress Indicator			Status
2.2.1.	Develop guidance on sustainable AtoN design & maintenance.	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.2.2.	Develop guidance on the commissioning of AtoN equipment and systems and engineering audits.	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.1	Develop guidance on AtoN design & maintenance for hot climates.	1	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.3.2	Seminar on AtoN delivery and maintenance in extreme heat	2	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.4.1	Review and update guidance on safety of personnel	2	4		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.1	Support the WWA in updating Recommendations and Guidelines on standards for training and certification of AtoN personnel	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
3.2.1.	Support the WWA in updating model courses on standards for training and certification of AtoN personnel	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
4.1.1.	Develop guidance on the use of heritage lighthouses for modern AtoN equipment & systems.	2	5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.1.2.	Develop guidance on AtoN structure protection systems & repair techniques	2	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.1.	Navguide updates	3	6		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.1.2.	Review of IALA documents (ref ENG1 input paper on document ownership)	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
5.2.1.	Identify current documents as potential Standards, Recommendations, Guidelines & Manuals.	4	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.3.1.	Presentation to ENG committee on new developments in AtoN & related topics.	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
5.3.2.	Develop the IALA Wiki	1	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commenced ENG1
5.3.3.	Develop the IALA Dictionary	3	7		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ANNEX G ACTION ITEMS*Action Items for the IALA Secretariat*

1	The Secretariat is requested to forward Output Paper ENG1-11.1.1 to Council, PAP and ENG2.	7
2	The Secretariat is requested to update the list of Rapporteur items for ENG2.	9
3	The Secretariat is requested to forward the Terms of Reference for the ENG Working Groups, ENG1-11.1.2 to the PAP and ENG2.	11
4	The Secretariat is requested to forward the ENG Work Programme Tasks for 2014-2018, ENG1-11.2.1 to ENG2.	11
5	The Secretariat is requested to forward the liaison note ENG1-11.1.9 and paper ENG1-11.1.10 to the ARM Committee for their consideration.	11
6	The Secretariat is requested to forward revised Guideline 1061, working paper ENG1.11.2.8, to ENG2.	12
7	The Secretariat is requested to forward input paper ENG1.9.4.6 to ENG4 for consideration (Task 5.1.8).	12
8	The Secretariat is requested to forward paper ENG1-9.4.5 as an information paper to the appropriate place on the IALA Wiki.	13
9	The Secretariat is requested the forward input paper ENG1.11.2.9 to ENG2 for consideration when developing new guidance on the selection of rhythmic characters.	13
10	The IALA Secretariat is requested to forward working paper ENG1-11.2.7 to ENG2	15
11	The Secretariat is requested to update IALA links to the Mobilis / Calmar mooring software.	15
12	The IALA Secretariat is requested to forward working paper ENG1-11.2.2 and ENG1-11.2.3 to ENG2.	16
13	The IALA Secretariat is requested to forward the proposed modification to the Navguide on the specification of audible signals from EEP21 to ARM, ENG1-11.1.11 refers.	16
14	The IALA Secretariat is requested to forward output papers ENG1-11.1.3, ENG1-11.1.4, ENG1-11.1.5, ENG1-11.1.6, ENG1-11.1.7 to the WWA Board for approval.	17
15	The IALA Secretariat is requested to forward output papers ENG1-11.1.8 and ENG1-11.1.12 to the ARM Committee for review.	17
16	The Secretariat is requested to forward output paper ENG1-11.1.8, draft Recommendation E-141 Ed3 Standards for Training and Certification of AtoN Personnel, to Council following review by the ARM Committee.	17
17	The IALA Secretariat is requested to forward working papers ENG1-11.2.4 and ENG1-11.2.6 to ENG2.	17
18	The Secretariat is request to forward output paper ENG1-11.1.2 to the PAP and ENG2.	18
19	The Secretariat is requested to forward the ENG1 Committee report (ENG1-13.1) to Council to note.	18

Action Items for Members

20	David Jeffkins is requested to investigate if the Wiki is a suitable means of retaining software programmes information on the Wiki.	10
21	Committee members are requested to identify and bring technical information relevant to the ENG meetings in a format suitable for uploading to the Wiki.	10

- 22 Malcolm Nicholson, Frank Hermann, Fernando Romero and Aivar Usk are requested to work on the Guideline 1041, ENG1-11.2.5, inter-sessionally and submit a revised input paper to ENG2. 12
- 23 Ju-Seop Han is requested to provide more information regarding the cause of LED degradation and conclusions from the trials as an input to ENG2 13
- 24 ENG Committee members are requested to provide details of tests carried out on degradation of LED lanterns in service, and any conclusions drawn, as information papers to ENG2 for input to the revision of Guideline 1043 on Light Sources, Guideline 1048 on LED Technologies and Guideline 1049 on the use of modern light sources in traditional optics. 13
- 25 Jorgen Royal Petersen is requested to provide a presentation to ENG2 on the Danish national AtoN character data base. 13
- 26 Sigge Gustafsson, Yves-Marie Blanchard and Frank Hermann are requested to provide information about their national AtoN character lists to ENG 2. 13
- 27 Malcolm Nicholson is requested to contact the US Coast Guard with regard to their AtoN light character list and input to ENG2. 13
- 28 Committee Members are requested to provide inputs papers to ENG2 on any of the topics mentioned in the key milestones for task 1.1.3. 14
- 29 Committee members are requested to consider hosting the IALABATT/ IALALITE workshop in 2017. 14
- 30 Simon Millyard is requested to progress the arrangement of host administration for the IALABATT / IALALITE workshop. 14
- 31 Committee members are requested to review the working paper ENG1-11.2.2 and relevant guidelines intersessionally. 15
- 32 Committee members are requested to submit input papers regarding their experience of incorporating AIS AtoN systems into AtoN to ENG2. 15
- 33 Committee members are requested to review the content of the existing Guideline 1036 (environmental considerations) and Guideline 1077 (Maintenance of AtoN) with a view to creating a new guideline and submit proposals to ENG2. 15
- 34 Committee members are requested to bring example of their procedures and documentation regarding commissioning and engineering auditing of AtoN equipment and systems to ENG2. 15
- 35 Simon Millyard is requested to progress the arrangement of a host administration for the Extreme Heat workshop. 16
- 36 Committee members are requested to review working papers ENG1-11.2.2 and ENG1-11.2.3 intersessionally and research previous work on radar reflectors. 16
- 37 Simon Millyard is requested to submit input to the PAP in relation to the proposal to use Recommendations as pointers to information sources. 16
- 38 Committee members are requested to consider the appropriate content for a Guideline on the use of heritage lighthouses for modern AtoN equipment & systems. 17
- 39 The Heritage Forum is requested to provide the definition of heritage lighthouse. 17
- 40 Committee members are requested to review working papers ENG1-11.2.4 and ENG1-11.2.6 and consider the appropriate content for the new guideline on maintenance of AtoN structures. 17
- 41 David Jeffkins is requested to amend the IALA Wiki ENG front page categories to the agreed format. 18