European Union Aviation Safety Agency

Comment-Response Document 2016-06 (C)

RELATED NPA 2016-06 (C) — RMT.0573 — 12.10.2020

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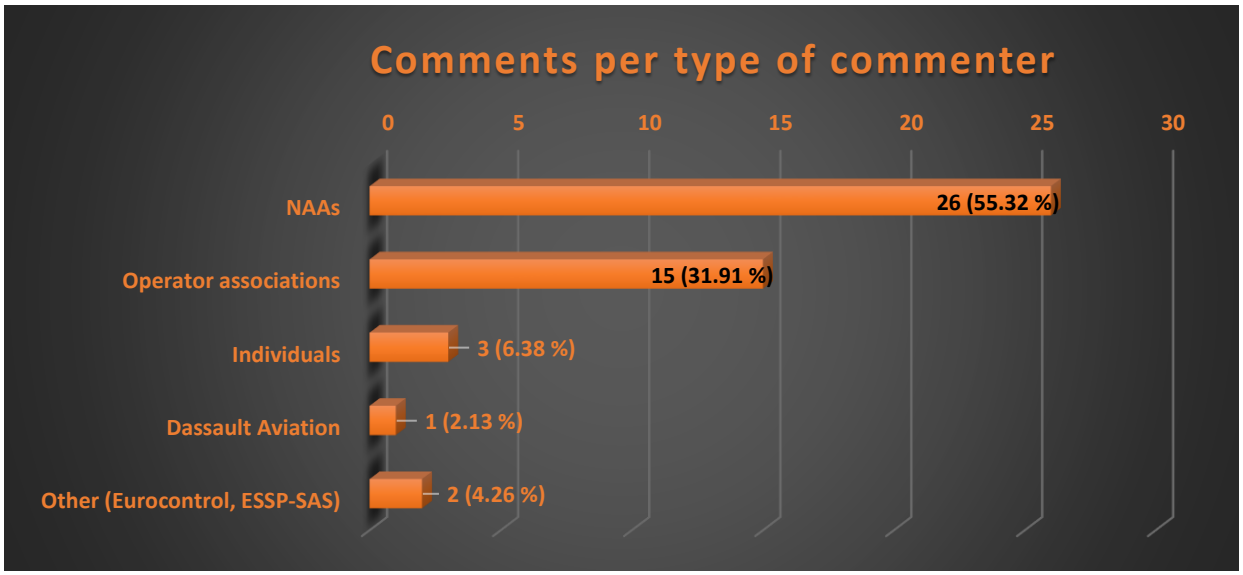
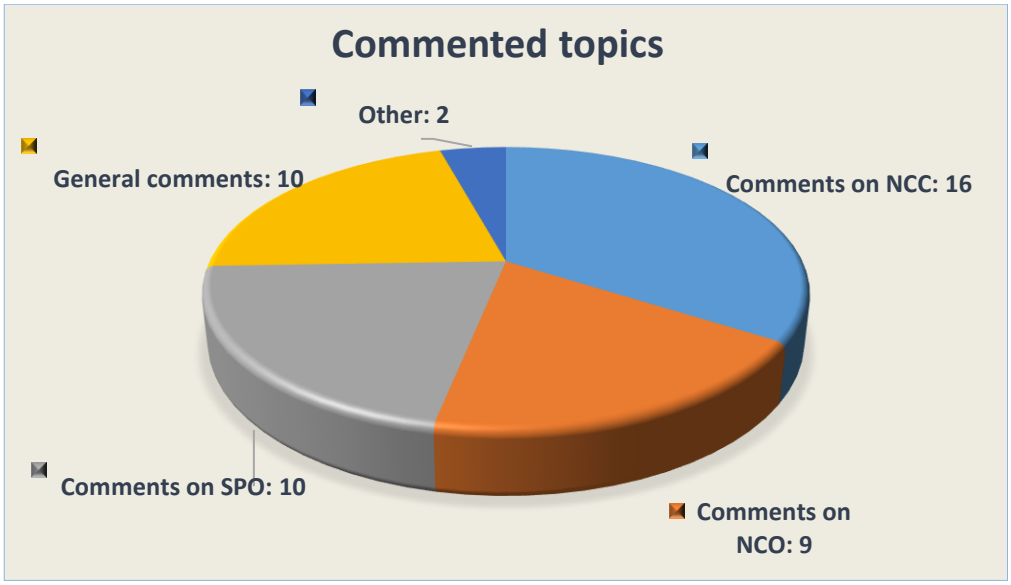
1. Summary of the outcome of the consultation

NPA 2016-06 (C) received 47 comments, most of which focused on changes to Annex VI (Part-NCC) (16 comments), Annex VII (Part-NCO) (9 comments), and Annex VIII (Part-SPO) (10 comments) to Regulation (EU) No 965/2012 (the 'Air OPS Regulation'). 26 out of 47 comments were submitted by national aviation authorities (NAAs), followed by 15 comments altogether by several associations of operators and aerodromes.



The comments on NPA 2016-06 (C) generally supported the proposed changes to Part-NCC, Part-NCO, and Part-SPO towards a more proportionate regime.



Framework for Part-NCC

Some commenters were concerned that the Part-NCC rules, as proposed in NPA 2016-06 (C), were not harmonised with the paradigm and terminology used in Annex IV (Part-CAT) to the Air OPS Regulation. For example, the concept of the final reserve fuel (FRF) was not defined and its distinction from the contingency fuel

was not clearly made. The content of point NCC.OP.130, as published in NPA 2016-06 (C), was transferred to point NCC.OP.131, and new content was created. Both new rules were revised to be better harmonised with Part-CAT and International Civil Aviation Organization (ICAO) Annex 6, Part II. Chapter 3 than the NPA 2016-06 (C) proposal.

In the revised version, point NCC.OP.130 requires the operator to establish a fuel policy. Unlike Part-CAT, that fuel policy consists only of the planning and in-flight fuel/energy management elements, as the selection of alternate aerodromes remains simple and separate. Point NCC.OP.131 provides for the preflight calculation of the required fuel at a safety objective level, and more details are given in the related AMC1 NCC.OP.131. Those new rules are clearer, but do not impose extra burden on NCC operators.

Contingency fuel versus FRF in Part-NCO

Commenters generally welcomed the less prescriptive approach to Part-NCO, which was taken in NPA 2016-06 (C) and allows for flexibility in the amount of FRFcarried. Some commenters were concerned about whether the point NCO.OP.125 (b) criteria for selecting the FRF quantity confused the FRF concept with contingency fuel.

Decades ago, the implementing rule (IR) set the prescriptive FRF amount for CAT operations at 30 minutes for turbine-powered aeroplanes , which is difficult to justify. A possible explanation could be that it would allow an extra circuit and approach to be completed in case of an unforeseen event on final approach at the destination or destination alternate. It therefore does have the character of an allowance for unexpected circumstances, even though the requirement for being protected, unless an emergency arises, distinguishes it from normal ‘contingency fuel’ by. Hence, the European Aviation Safety Agency (EASA) is satisfied that the criteria of point NCO.OP.125 (b) are appropriate for that purpose.

The NPA 2016-06 (C) version of the new AMC1 NCO.OP.125(b) was changed, as Review Group (RG) RMT.0573 considered that normal cruising altitude does not give sufficient information on speed, range, or power setting. It was therefore replaced with a power setting that can be chosen if time, rather than range, would be a concern.

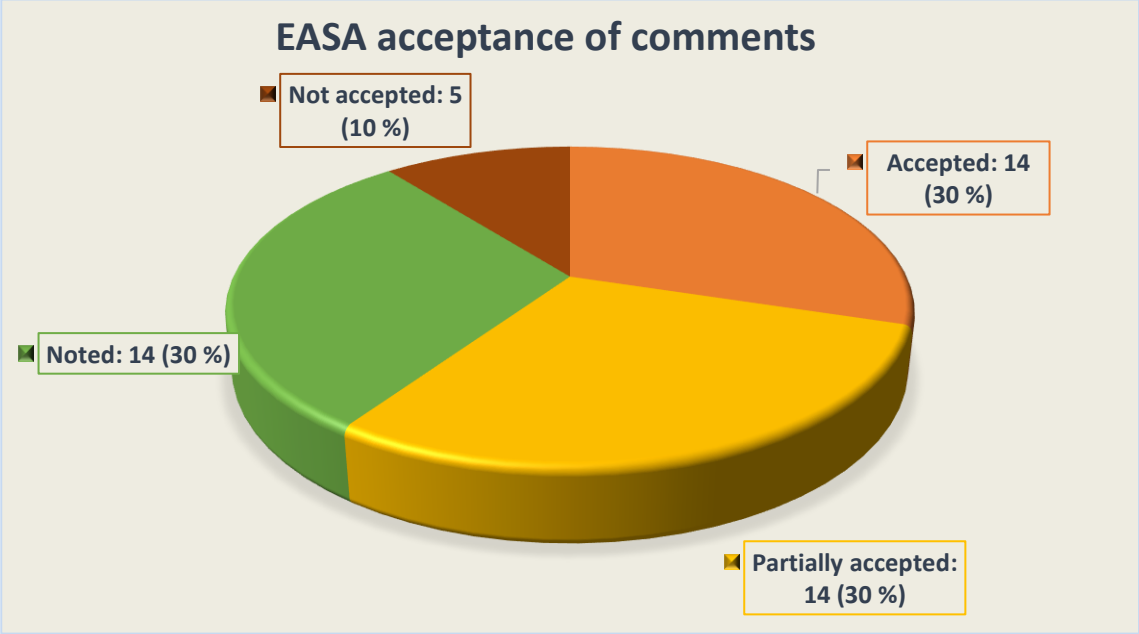
Partial alignment of Part-SPO with Part-NCC

Some commenters expressed their concern about harmonising some Part-SPO requirements with Part-NCC, arguing that the requirements might be disproportionate for Part-SPO. Based on those concerns, EASA modified the NPA 2016-06 (C) proposals on Part-SPO.

The requirement for establishing fuel policies and considering the various fuel needs (taxi, trip, alternate, contingency, FRF etc.) remained harmonised with Part-NCC in the revised rule. However, the prescriptive FRF requirement was changed to be harmonised with the more performance-based approach that was taken for Part-NCO: it allows the operator to justify the use of a different FRF quantity as an alternative means of compliance (AltMoC).

Acceptance of comments

14 comments were accepted, 14 were partially accepted, 14 comments were noted and 5 — not accepted. The acceptance of comments status is as follows:



2. Individual comments and responses

In responding to comments, a standard terminology has been applied to attest EASA's position. This terminology is as follows:

(a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.

(b) **Partially accepted** — EASA either agrees partially with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.

(c) **Noted** — EASA acknowledges the comment but no change to the existing text is considered necessary.

(d) **Not accepted** — The comment or proposed amendment is not shared by EASA.

(General comments)	-

comment	*2* comment by: *EUROCONTROL* The EUROCONTROL Agency does not have comments on NPA 2016-06 (C).
response	Noted.

comment	*11* comment by: *ERAC - European Regional Aerodromes Community* This RMT is a positive example for EASA´s own claim to create "better regulation"
response	Noted.

comment	*16* comment by: *Luftfahrt-Bundesamt* The LBA has no comments on NPA 2016-06 (C).
response	Noted.

comment	*18* comment by: *UK CAA* **Page No:** General Comment **Paragraph No:** Repeated text throughout document **Comment:** The word "minutes" has been reduced to the term 'min' throughout the document, and in NPA 2016-06(A) and (B) as well. It is recommended that in the interests of

readability and to prevent incorrect interpretation, the full spelling “minutes” is used throughout.

Justification: Clarity of meaning.

response Accepted.

comment *43* comment by: *René Meier, Europe Air Sports*

Europe Air Sports thanks the Agency for publishing NPA 2016-06(A)(B)(C). For obvious reasons I concentrated on Sub-NPA 2016-06(C).

Our communities will be well served with these new provisions based on safety objectives leaving the responsibility where it has to be, with the pilot in command.

We identified NCO.OP.125-7 and, especially, NCO.OP.185 as requirements that are inconsistent with the principles of this Safety Strategy and the Agency’s performance-based approach with regard to regulating. In particular:

— the prescriptive nature of the fuel planning and management rules does not take into account the broad range of activities undertaken under Part-NCO; and

— the rules are in effect aimed at achieving a level of safety appropriate for CAT operations, which is disproportionate in the context of GA operations.

This is now changed for the good: The prescriptive requirement for a specific number of minutes of FRF has been replaced by a safety-objective-based rule, as well as a set of criteria to be used by the pilot-in-command in determining the quantity of FRF to be carried. Default values are given in the related AMC.

The requirements for in-flight fuel management have been adapted and updated to be aligned with the respective ICAO requirements.

NCO.OP.125(a) has been inserted to provide a performance-based safety objective. It is a slightly modified version of the essential requirement 2.a.7 of Annex IV to the Basic Regulation.

The previous NCO.OP.125(b) and (c) have been deleted and reintroduced as AMC.

NCO.OP.125(b) has been inserted to introduce the concept of FRF. It also provides some risk management factors that should be used to determine a reasonable FRF, replacing the previous prescriptive values. Further guidance is included in GM1 NCO.OP.125(b).

NCO.OP.125(c) provides the same calculations of the pre-flight fuel as required by the previous NCO.OP.125(a), but with no specific numbers for FRF. It is therefore much simpler.

NCO.OP.126 has been deleted as it would be identical to NCO.OP.125, which can apply to both aeroplanes and helicopters (with respective different AMC).

NCO.OP.185 reflects the ICAO Annex 6, Part II, Chapter 2.2.4.7 standards on in-flight fuel management.

We discussed if «fuel» could be replaced with «energy», considering the many electric/hybrid projects actually existing. This would be in-line with our contributions to RMT.0498 Reorganisation of FAR Part 23 / CS-23. This is, of course, only a question of terminology and definitions, common understand, however, starts with precise terms and concise definitions.

response

Last comment on 'fuel' versus 'energy': partially accepted.

The term 'fuel' was replaced with 'fuel/energy' in all the implementing rules (IRs) where a shift between the two is possible. The AMC and GM were not consequently changed so far (they still refer only to 'fuel) to allow operators that use other types of energy than fuel to use an alternative means of compliance (AltMoC).

However, if the majority of the AMC and GM will eventually fit those operators, then the term 'fuel' will be replaced with 'fuel/energy' in these documents as well.

Only the AMC and GM to Part-NCO already include the term 'fuel/energy', as Part-NCO aircraft are likely the first ones to use alternative types of energy for propulsion.

comment

44 comment by: *FNAM*

The FNAM (Fédération Nationale de l'Aviation Marchande) is the French Aviation Industry Federation / Trade Association for Air Transport, gathering the following members:

- CSTA: French Airlines Professional Union (incl. Air France)
- SNEH: French Helicopters Operators Professional Union
- CSAE: French Handling Operators Professional Union
- GIPAG: French General Aviation Operators Professional Union
- GPMA: French Ground Operations Operators Professional Union
- EBAA France: French Business Airlines Professional Union

And the following associated members:

- FPDC: French Drone Professional Union
- UAF: French Airports Professional Union

Introduction:

The comments hereafter shall be considered as an identification of some of the major issues the French industry asks EASA to discuss with third-parties before any publication of the proposed regulation. In consequence, the following comments shall not be considered:

- As a recognition of the third-parties consultation process carried out by the European Parliament and of the Council;
- As an acceptance or an acknowledgement of the proposed regulation, as a whole or of any part of it;

	- As exhaustive: the fact that some articles (or any part of them) are not commented does not mean FNAM has (or may have) no comments about them, neither FNAM accepts or acknowledges them. All the following comments are thus limited to our understanding of the effectively published proposed regulation, notwithstanding their consistency with any other pieces of regulation.
response	Noted.

Notice of Proposed Amendment 2016-06(C) — Fuel planning and management — Sub-NPA 2016-06(C) 'Aeroplanes/helicopters — Part-NCC, Part-NCO & Part-SPO' p. 1-3

comment	*15* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* The Swedish Transport Agency supports the proposals and the overall objective to develop a more performance based approach in regulating NCO-operations.
response	Noted.

comment	*19* comment by: *UK CAA* **Page No:** 1 **Paragraph No:** Executive Summary **Comment:** In the Executive Summary for this sub-NPA, a good synopsis of the intentions for the NPA are described. The intention to align fuel policies across Annexes, where possible, is understood as is the need for proportionality and convergence with ICAO Annex 6. However, after reviewing all elements of the NPA, and in particular parts (B) and (C), the proposal to align Part-SPO with Part-NCC introduces significant issues and is not supported. Due to the wide range of activities to be conducted as specialised operations with all levels of motor powered aircraft, it is not appropriate to impose prescriptive fuel requirements on operators. The more performance based approach taken for Part-NCO is considered to be a practical and proportionate means of setting the safety standards for SPO. It is therefore strongly recommended that a further review is undertaken to address the inconsistencies that will inevitably arise if the proposed fuel provisions are taken forward. There is also inconsistency evident between the separate parts of this NPA with regards to the adoption of fuel policies which adds to the difficulties in assessing proportionality and appropriateness. **Justification:** The achievement of practical and reasonable fuel policies for the whole range of flying activities covered by the regulation. Imposing unrealistic and prescriptive

	requirements, especially for specialised operations, will incur unacceptable constraints and most probably non-compliance.
response	Accepted. While the requirement for establishing fuel policies and considering the various fuel needs (taxi, trip, alternate, contingency, final reserve fuel (FRF), etc.) remains harmomised with Part-NCC, the more prescriptive FRF requirementwas changed to be harmonised with the more performance-based approach that was taken for Part-NCO.

2. Explanatory note — 2.1. Overview of the issues to be addressed — 2.1.2. Part-NCO p. 6-7

comment	*41* comment by: *DGAC France* DGAC France thanks the Agency to issue proportionate and objective-based rules for General Aviation.
response	Noted.

2. Explanatory note — 2.4. Overview of the proposed amendments — 2.4.1. Part-NCC and Part-SPO p. 7-8

comment	*40* comment by: *DGAC France* Basic fuel scheme is set out in a combination of IR (NCC.OP.130) and AMC (AMC1 NCC.OP.130). IR parts, e.g FRF amount, cannot be varied. AMC parts, e.g. contingency, additional fuel calculation, can use an AltMOC, which forms part of the Ops Manual and declaration to the NAA, like with other AMC in NCC/SPO. However, the text is rather unclear about the inclusion of this new concept within the framework of the NCC declaration or the SPO approval. DGAC France would be keen to know how the basic fuel scheme of the operator is processed by the NAA (for CAT: no explicit approval necessary, but fuel scheme is approved as part of AOC).
response	Noted. Operators may use the new AMC1 NCC.OP.131/AMC1 SPO.OP.131 to develop accordingly the specific parts of the Operations Manual (OM) without further interaction with the competent authority. If operators choose to use an AltMoC, point ORO.GEN.120 (c) requires them to notify to the competent authority the list of the AltMoC that were used to comply with the IR. No prior approval is necessary. The competent authority is required to evaluate the AltMOC and respond the operators, as set out in point ARO.GEN.120 (d).

3. Proposed amendments — 3.1. Draft regulation (draft opinion) — Part-NCC p. 10-12

comment	*1* comment by: *Nicolas Bachmann* Would it not be worth mentioning that not only weather issues are checked, but also NOTAM are considered? Thus operationally - permissible?
response	Not accepted. The definition of 'weather-permissible aerodrome' in Annex I (Definitions) to the Air OPS Regulation includes the requirement that the aerodrome is 'adequate'. Point NCC.OP.145 also requires the pilot-in-command, before commencing a flight, to ascertain by every reasonable means available that the space-based facilities, ground and/or water facilities, including communication facilities and navigation aids that are available and directly required on such flight, for the safe operation of the aircraft, are adequate for the type of operation under which the flight is to be conducted.

comment	*3* comment by: *ERAC - European Regional Aerodromes Community* NCC.OP.130 and SPO.OP.130 All amendments and new figures are adequate in terms of safety and fulfil the aims of ToR.
response	Noted. The new references are now points NCC.OP.131 and SPO.OP.131.

comment	*4* comment by: *ERAC - European Regional Aerodromes Community* NCC.OP.151 (b) and SPO.OP.150 Who is designating an aerodrome as an isolated one? The air-operator or the aerodrome or the authorities or by definition? Some short GM would assist the implementation and usage of this article.
response	Accepted. A new GM1 NCC.OP.105 and an identical GM1 SPO.OP.105 were added to clarify the intent of the 'isolated aerodrome' concept. Identical comment: 7.

comment	*14* comment by: *Dassault-Aviation* **Dassault-Aviation comment:** The RIA for Part NCC and Part SPO aims at aligning these Parts with Part CAT regulation. The main differences between the actual NCC/SPO regulation and the proposed regulation is that the 45mn Fuel reserve at normal cruising level is replaced by a Fuel Reserve of 30mn at holding at 1500ft above aerodrome elevation + 5% of the trip fuel or 5mn at holding at 1500ft, whichever is higher. Even if the 45mn rule is not very clear and can be interpreted differently by operators, the 5% trip fuel can be a huge quantity not relevant for NCC/SPO operators. For a CAT operator having to respect a contract with his customers including destination and time at destination, this rule can be understood even if on most routes the wind predictions are very accurate. For an NCC/SPO operator, other possibilities exist if the fuel consumption varies from the scheduled fuel scheme: reduce speed and/or climb to a higher level, divert to an alternate prior to destination. Typically, for a Falcon 7X operator: - 45mn at Normal Cruising Altitude with a 2000lbs/h of Fuel Flow equals to 1500lbs - 30mn of Holding at 1500ft at a Fuel Flow of 2000lbs/h equals 1000lbs - 5% of a trip fuel of 30 000lbs equals 1500lbs So the CAT rule penalizes the operator by 1000lbs of Fuel, or roughly 250Nm of range. **Proposed change:** As we agree that the 45mn at normal cruising speed is not an accurate definition, we suggest that for NCC/SPO operators the rule could be: - A Fuel Reserve of 45mn at holding at 1500ft above aerodrome elevation
response	Not accepted. The comment implies that the current NCC and SPO rules do not require contingency fuel to be carried in addition to the FRF that is listed in the new point NCC.OP.131 (previously point NCC.OP.130 in NPA 2016-06 (C)), and that contingency fuel is included within 45-minute FRF. The new point NCC.OP.131 (c) and the amended point NCC.OP.205 (c) do not support this view. The concept of separating allowances for FRFand contingency fuel is consistently applied throughout all parts of the Air OPS Regulation.

comment	*20* comment by: *UK CAA* **Page No:** 10 **Paragraph No:** 3.1 / 1, NCC.OP.105 **Comment:** As this is a rule the word 'may' is not appropriate. It is recommended that the word 'shall' is reinstated **Justification:** The word 'may' infers an option; rules are not optional
response	Partially accepted. The rule should not require the operator to consider an aerodrome as isolated if the operator wishes to plan fuel for an alternate aerodrome, even though that alternate aerodrome is beyond the ranges set out in point NCC.OP.105.

comment	*21* comment by: *UK CAA* **Page No:** 10 **Paragraph No:** 3.1 / 2, NCC.OP.130(b) **Comment:** The principle for determining final reserve fuel (FRF) for when no destination alternate is required is supported. However, the proposed text leaves some ambiguity in terms of fuel consumption rates. A suggested improvement is proposed below as a complete replacement. **Justification:** Clarity of intent and purpose **Proposed Text:** Replace paragraph (b) in its entirety with the following: (b) The pilot-in-command shall only commence a flight if the aeroplane carries sufficient fuel and oil ***calculated in accordance with the fuel policy*** for the following: (1) for visual flight rules (VFR) flights: (i) by day, to fly to the aerodrome of intended landing and thereafter a final reserve fuel to fly for at least 30 ***minutes*** at normal cruising altitude; or (ii) by night, to fly to the aerodrome of intended landing and thereafter a final reserve fuel to fly for at least 45 ***minutes*** at normal cruising altitude; (2) for IFR flights: (i) when no destination alternate is required, to fly to the aerodrome of intended landing; or (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, then to an alternate aerodrome, and thereafter a final reserve fuel calculated according to the estimated mass on arrival at the destination alternate aerodrome at holding speed, at 1 500 ft (450 m) above aerodrome elevation in standard conditions which shall not be less than:

(A) for aeroplanes with reciprocating engines, the fuel to fly for 45 minutes; or

(B) for aeroplanes with turbine engines, the fuel to fly for 30 minutes.

response

Partially accepted.

The content of point NCC.OP.130 in NPA 2016-06 (C) was moved to point NCC.OP.131. Point NCC.OP.131 now includes both the previous content of NCC.OP.130 and that of the current point NCC.OP.131. The text was completely revised for clarity and terminology consistency with Part-CAT and ICAO Annex 6, Part II, Chapter 3.4.3.5.2.

comment

22 comment by: *UK CAA*

Page No: 11

Paragraph No: 3.1 / 2, NCC.OP.130(c)

Comment: In computing the fuel required it is recommended that 2 additional items from ICAO Annex 6 Part II 3.4.3.5.2, Fuel requirements, covering aircraft mass and fuel consumption, are added to the list of items to be taken into consideration.

Justification: Completeness and alignment with ICAO

Proposed Text:

(c) In computing the fuel required ……into consideration:

(x) anticipated aeroplane mass

(x) fuel consumption data

response

Accepted.

The revised version of point NCC.OP.131 (b)(2) includes those items.

comment

23 comment by: *UK CAA*

Page No: 12

Paragraph No: 3.1 / 4, NCC.OP.205(b)

Comment: The use of the term “to a site” may be misinterpreted and it is recommended that the text is amended to read ‘aerodrome or operating site’. Also the use of the phrase “shall be made” is inappropriate and it is recommended that it is replaced with the ICAO text of ‘can be made’.

Justification: Clarity and correct use of defined terminology

Proposed Text:

	(b) The pilot in command shall monitor the amount of usable fuel to ensure that it is not less than the fuel required to proceed to an ***aerodrome or operating*** site where a safe landing ~~shall~~ ***can*** be made with the planned final reserve fuel remaining.
response	Partially accepted. The definition of 'safe landing' includes the concept of an aerodrome or operating site. It is therefore not appropriate to include it here. 'Shall' was replaced by 'can'. Identical comment: 52 on NPA 2016-06 (B) (see also CRD 2016-06 (B)).

comment	*45* comment by: *FNAM* **NCC.OP.205** The FNAM was surprised to see the introduction of the phraseology "MINIMUM FUEL" and "MAYDAY MAYDAY MAYDAY FUEL" in the 965/2012 regulation without adding, at the same time, the corresponding requirements in the SERA and in the ATM/ANS regulations. Therefore, to ensure consistency between the several European regulations, the FNAM suggests to add in the SERA and in the ATM/ANS regulations the adequate corresponding requirements regarding the "MINIMUM FUEL" state and the declaration of a fuel emergency situation "MAYDAY MAYDAY MAYDAY FUEL". In the current regulation, the "MINIMUM FUEL" is not a declaration which confers any special treatment by ATC (it is not an emergency situation) but an information message. Controllers should bear in mind that an emergency situation is possible should any additional delay occur. Hence, controllers are not required to provide priority to pilots of aircraft that have indicated or suggested that they are becoming short of fuel or have used the phraseology "MINIMUM FUEL". The term "MINIMUM FUEL" indicates that the pilot, intending to land at a specific aerodrome, calculates that any change to the existing clearance to that aerodrome might result in landing with less than the planned final reserve fuel. Furthermore, the FNAM would like the EASA to add some clarifications regarding this IR: Pilots & controllers shall keep in mind that PAN remains a universally prescribed means of declaring any urgency situation which requires assistance including low fuel emergency. In such case the declaration, whatever its cause, shall require priority to be given. Controllers & pilots should also understand that a PAN or a MAYDAY declaration arising because of low fuel may not necessarily use the fuel-specific phraseology suggested in PANS-ATM - pilot may make a standard form declaration first and only once it has been acknowledged explain that the problem is low fuel and priority corresponding to the declaration made is required.
response	Partially accepted. Regulation (EU) 2016/1185, amending Regulation (EU) No 923/2012, on common rules of the air (published on 21 July 2016), and EASA ED Decision 2016/023/R (published on 14 October 2016), amending the AMC and GM to the rules of the air, introduced the rules on

the 'MINIMUM FUEL' declaration in the European regulatory system before the Air OPS rules. GM1 SERA.11012 'Minimum fuel and fuel emergency' provides the following clarification:

The declaration of MINIMUM FUEL informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing, and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

In addition, EASA (SIB) 2018-08 was published on 8 May 2018, which reminded air operators and ATC of the relevant requirements in ICAO Annex 6 and Doc 4444, as well as in Part-SERA. Moreover, SIB 2018-08 points to the detailed explanations and scenarios for the use of the 'MINIMUM FUEL' declaration, which are provided in ICAO Doc 9976 'Flight Planning and Fuel Management (FPFM) Manual'.

The new fuel rules introduce the requirements for the 'MINIMUM FUEL' and a 'MAYDAY MAYDAY MAYDAY FUEL' declarations in the Air OPS Regulation, as well as more examples of their use in the new GM1 CAT.OP.MPA.185.

The 'PAN' declaration is not a standard declaration for fuel, but for other urgencies.

Following publication of Opinion No 02-2020, EASA will initiate safety promotion activities to increase the awareness and understanding of the differences between the various fuel-related messages amongst pilots and ATC personnel.

Identical comments: 47 (on part-SPO) and 48 (on Part-NCO), as well as 195 on NPA 2016-06 (A) on CAT aeroplanes (see also CRD 2016-06 (C)).

3. Proposed amendments — 3.2. Draft AMC and GM (draft decision) — Part-NCC p. 12-14

comment

5 comment by: *ERAC - European Regional Aerodromes Community*

AMC1 NCC.OP.130

adequate and very helpful description

response

Noted.

The new reference is AMC1 NCC.OP.131.

comment

13 comment by: *Gabriel Arroyo*

Like for NPA 2016-06 (A) in AMC1 NCC.OP.130 when defining additional fuel, reference is made to the most critical point along the route. However, it is not mentioned the scenario for this critical point, that is engine failure or loss of pressurization, whichever requires the greater amount of fuel.

response

Accepted.

The text was amended to clarify that 'additional fuel' refers to an engine failure or loss of pressurisation scenario. It is now in the new AMC1 NCC.OP.131.

comment

24 comment by: *UK CAA*

Page No: 12

Paragraph No: 3.2 / 1 AMC1 NCC.OP.130

Comment: The opening sentence establishes the use of the AMC to meet the fuel planning policy but implies that the operator must comply with this AMC. Although the intent is understood the statement implies that this may be the only means of compliance. Suggested text provided below.

Justification: Clarity of purpose

Proposed Text:

The operator should establish a ~~basic~~ fuel ~~planning~~ policy ~~which complies with~~ ***based on*** the fuel calculations ~~criteria detailed~~ **provided** in this AMC

response

Partially accepted.

The opening sentence of the AMC was not necessary and was therefore deleted. The purpose of an AMC is to set out how the related IR should be complied with. It does not intend to preclude the use of AltMoC.

AMC1 NCC.OP.130 was renumbered as AMC1 NCC.OP.131.

comment

25 comment by: *UK CAA*

Page No: 13

Paragraph No: 3.2 / 1, AMC1 NCC.OP.130(d)

Comment: To ensure alignment of destination alternate fuel policy with ICAO Annex 6, Part II 3.4.5.3, it is recommended that the section dealing with isolated aerodromes is included in Part NCC. It was noted that on Page 27, paragraph 4.4.5 of the RIA that a difference was recorded but no justification for its omission seems to have been provided.

Justification: The provision of means of compliance for isolated aerodromes is considered important and provides closer alignment with ICAO standards.

Proposed Text: Add new paragraph as follows:

(d) ***(3) Where the aerodrome of intended landing is an isolated aerodrome:***

i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or

	ii) for a turbine-engine aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
response	Accepted. AMC1 NCC.OP.130 was renumbered as AMC1 NCC.OP.131.

comment	*26* comment by: *UK CAA* **Page No:** 14 **Paragraph No:** 3.2. / 2, GM1 NCC.OP.205(b)&(d), Note. **Comment:** It is not clear why the definition of "Safe Landing" is included here as there is a proposal in NPA 2016-06 (A) on page 31 to include it in Annex 1 Definitions. Either, Annex 1 is amended with a definition for all other Annexes, or the Note is retained. In addition, the term "precautionary landing" is used in this GM without definition. It is recommended that the definition of a "precautionary landing", as shown in proposed GM1 NCO.OP.185(b)&(c) sub-paragraph (c) on page 24, is added here as well or included in Annex 1 for use in all Annexes. **Justification:** Standardisation of terms and definitions.
response	Partially accepted. The repeated definition of 'safe landing' was deleted. 'precautionary landing' was also deleted, as the concept is included in the definition of 'safe landing' in Definitions.

comment	*27* comment by: *UK CAA* **Page No:** 14 **Paragraph No:** 3.2 / 2, GM1 NCC.OP.205(c) **Comment:** The term "precautionary landing" is used in this GM without definition. It is recommended that the definition of a "precautionary landing", as shown in proposed GM1 NCO.OP.185(b)&(c) sub-paragraph (c) on page 24, is added here as well or included in Annex 1 for use in all Annexes. **Justification:** Standardisation of terms and definitions.
response	Not accepted. 'precautionary landing' was deleted, as it is included in the definition of 'safe landing'. It is the same as the second half of comments 26 and 33.

comment	*46* comment by: *FNAM* **GM1 NCC.OP.205(b)&(d)** The FNAM suggests to suppress the note of the GM1 NCC.OP.205(b)&(d) introducing the definition of the "safe landing" since this definition is already stated in the Part DEF definition of this regulation (NPA 2016-06 (A)).
response	Accepted.

3. Proposed amendments — 3.3. Draft regulation (draft opinion) — Part-SPO p. 15-17

comment	*6* comment by: *ERAC - European Regional Aerodromes Community* NCC.OP.130 and SPO.OP.130 All amendments and new figures are adequate in terms of safety and fulfil the aims of ToR.
response	Noted. The new references are points NCC.OP.131 and SPO.OP.131.

comment	*7* comment by: *ERAC - European Regional Aerodromes Community* NCC.OP.151 (b) and SPO.OP.150 Who is designating an aerodrome as an isolated one? The air-operator or the aerodrome or the authorities or by definition? Some short GM would assist the implementation and usage of this article.
response	Accepted. A new GM1 NCC.OP.105 and an identical GM1 SPO.OP.105 were added to clarify the intent of the 'isolated aerodrome' concept. Identical comment: 4.

comment	*28* comment by: *UK CAA* **Page No:** 15 **Paragraph No:** 3.3 / 1, SPO.OP.105 **Comment:** As this is a rule the word 'may' is not appropriate. The word "shall" should be reinstated. **Justification:** The word 'may' infers an option. Rules are not optional

response

Partially accepted.

The rule should not require the operator to consider an aerodrome as isolated if the operator wishes to plan fuel for an alternate aerodrome, even though that alternate aerodrome is beyond the ranges set out in point SPO.OP.105.

Identical comments: 20 and 34 on the relevant rules (Part-NCC and Part-NCO).

comment

29 comment by: *UK CAA*

Page No: 15

Paragraph No: 3.3 / 2, SPO.OP.130

Comment: The proposed text is drawn from Part-NCC and it is understood from the Explanatory Note that this was a conscious move. However, in reviewing NPA 2016-06 Parts (A) to (C), it has become clear that the proposal here could be difficult to apply and cause considerable constraint to a whole range of SPO activities, including local commercial operations with other than complex motor powered aircraft. It is strongly recommended that this section for SPO be reviewed in its entirety and the simplified principles used for Part-NCO.OP.125, including the AMC/GM, should be adopted or at least reflected. This could also mean that SPO.OP.131 for helicopters could be deleted and amalgamated with SPO.OP.130 and suitable AMC/GM provided.

The proposal as presented introduces significant constraints for the whole range of SPO activities and is not appropriate for this Annex and cannot be supported. The onus should be placed on the operator to use risk assessment and procedures to establish suitable final fuel reserves for the type of operations being conducted with comprehensive AMC/GM to assist in arriving at safe operating criteria.

Justification: The proposal introduces requirements that cannot be met when considering the whole range of SPO activities. A more proportionate set of requirements, possibly based on the performance principles use in the proposed Part-NCO requirements should be assigned.

Proposed Text: The section might include as an example:

SPO.OP.130 Fuel and oil supply — aeroplanes and helicopters

(a) The operator shall establish a fuel planning and in-flight re-planning policy to ensure that the quantity of energy/fuel and oil carried on board is sufficient for the intended flight to be completed safely, taking into account the meteorological conditions, any element affecting the performance of the aircraft, and any delays that are expected in flight, with an allowance for contingencies that may reasonably be expected to affect the flight.

(b) The pilot-in-command shall plan a quantity of fuel/energy to be protected as final reserve fuel/energy in order to ensure a safe landing.

(c) The pilot-in-command shall only commence a flight if the aircraft carries sufficient energy/fuel and oil for the following:

(1) for visual flight rules (VFR) flights and instrument flight rules (IFR) flights, when no destination alternate is required, sufficient energy/fuel and oil to fly to the aerodrome or operating site of intended landing plus the final reserve fuel/energy; and

(2) for IFR flights, when a destination alternate is required, sufficient energy/fuel and oil to fly to the aerodrome or operating site of intended landing, and thereafter to an alternate aerodrome, plus the final reserve fuel/energy.

response

Partially accepted.

While the requirement for establishing fuel policies and considering the various fuel needs (taxi, trip, alternate, contingency, FRF, etc.) remains harmomised with Part-NCC, the more prescriptive FRF requirementwas changed to be harmonised with the more performance-based approach that was taken for Part-NCO.

comment *30* comment by: *UK CAA*

Page No: 16

Paragraph No: 3.3 / 4, SPO.OP.190, (b)

Comment: The use of the term “to a site” may be misinterpreted and it is recommended that the text is amended to read ‘aerodrome or operating site’. Also the use of the phrase “shall be made” is inappropriate and it is recommended that it is replaced with the ICAO text of ‘can be made’.

Justification: Clarity and correct use of defined terminology

Proposed Text:

(b) The pilot in command shall monitor the amount of usable fuel to ensure that it is not less than the fuel required to proceed to an ***aerodrome or operating*** site where a safe landing ~~shall~~ ***can*** be made with the planned final reserve fuel remaining.

response

Partially accepted.

The definition of ‘safe landing’ includes the concept of an aerodrome or operating site. It is therefore not appropriate to include it here.‘Shall’ was replaced by ‘can’.

comment *31* comment by: *UK CAA*

Page No: 17

Paragraph No: 3.3 / 4, SPO.OP.190, (c)&(d)

Comment: Due to the nature of SPO activities, the proposed text and procedures may lead to an unnecessary level of confusion and misreporting of fuel conditions. It is likely that many SPO flights will not be in controlled airspace or be using ATC so it is strongly recommended

that for Part-SPO, the proposed text for Part-NCO as at NCO.OP.185 is used instead. This would be more appropriate and proportional

Justification: Proportionate and appropriate procedures and terminology

Proposed Text: Delete proposed sub-paragraphs (c) and (d) and replace with:

(c) The pilot-in-command of a controlled flight shall advise the air traffic control (ATC) of a minimum fuel/energy state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome or operating site, the pilot calculates that any change to the existing clearance to land at that aerodrome or operating site, or other air traffic delays, may result in landing with less than the final reserve fuel/energy.

(d) The pilot-in-command of a controlled flight shall declare a situation of fuel/energy emergency by broadcasting MAYDAY MAYDAY MAYDAY FUEL when the usable fuel/energy estimated to be available upon landing at the nearest site where a safe landing can be made in accordance with normal operating procedures is less than the planned final reserve fuel/energy.

response Accepted.

comment *47* comment by: *FNAM*

SPO.OP.190

The FNAM was surprised to see the introduction of the phraseology “MINIMUM FUEL” and “MAYDAY MAYDAY MAYDAY FUEL” in the 965/2012 regulation without adding, at the same time, the corresponding requirements in the SERA and in the ATM/ANS regulations. Therefore, to ensure consistency between the several European regulations, the FNAM suggests to add in the SERA and in the ATM/ANS regulations the adequate corresponding requirements regarding the “MINIMUM FUEL” state and the declaration of a fuel emergency situation “MAYDAY MAYDAY MAYDAY FUEL”.

In the current regulation, the “MINIMUM FUEL” is not a declaration which confers any special treatment by ATC (it is not an emergency situation) but an information message. Controllers should bear in mind that an emergency situation is possible should any additional delay occur. Hence, controllers are not required to provide priority to pilots of aircraft that have indicated or suggested that they are becoming short of fuel or have used the phraseology “MINIMUM FUEL”. The term “MINIMUM FUEL” indicates that the pilot, intending to land at a specific aerodrome, calculates that any change to the existing clearance to that aerodrome might result in landing with less than the planned final reserve fuel.

Furthermore, the FNAM would like the EASA to add some clarifications regarding this IR: Pilots & controllers shall keep in mind that PAN remains a universally prescribed means of declaring any urgency situation which requires assistance including low fuel emergency. In such case the declaration, whatever its cause, shall require priority to be given. Controllers & pilots should also understand that a PAN or a MAYDAY declaration arising because of low fuel may not necessarily use the fuel-specific phraseology suggested in PANS-ATM - pilot may make a

	standard form declaration first and only once it has been acknowledged explain that the problem is low fuel and priority corresponding to the declaration made is required.
response	Partially accepted. Please see the response to comment 45. Identical comments: 45 and 48 fon the respective rules.

3. Proposed amendments — 3.4. Draft AMC and GM (draft decision) — Part-SPO p. 17-19

comment	*8* comment by: *ERAC - European Regional Aerodromes Community* complete chapter 3.4 AMC and GM added AMC and GM is helpful and adequate
response	Noted.

comment	*32* comment by: *UK CAA* **Page No:** 18 **Paragraph No:** 3.4 / 1, AMC1 SPO.OP.130,(d) **Comment:** To ensure alignment of destination alternate fuel policy with ICAO Annex 6, Part II 3.4.5.3, it is recommended that the section dealing with isolated aerodromes is included in Part SPO. It was noted that on Page 27, paragraph 4.4.5 of the RIA that a difference was recorded for NCC but no justification for its omission seems to have been provided. **Justification:** The provision of means of compliance for isolated aerodromes is considered important and provides closer alignment with ICAO standards. **Proposed Text:** Add new paragraph as follows: **(d)** ***(3) Where the aerodrome of intended landing is an isolated aerodrome:*** *i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or* *ii) for a turbine-engine aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;*
response	Accepted. AMC1 SPO.OP.130 was renumbered as AMC1 SPO.OP.131.

comment	*33* comment by: *UK CAA* **Page No:** 18/19 **Paragraph No:** 3.4 / 2, GM1 SPO.OP.190(b)&(d) **Comment:** 1) The reference used in the header is incorrect. 2) The term “precautionary landing” is used in this GM without definition. It is recommended that the definition of a “precautionary landing”, as shown in proposed GM1 NCO.OP.185(b)&(c) sub-paragraph (c) on page 24, is added here as well or included in Annex 1 for use in all Annexes. **Justification:** Standardisation of terms and definitions.
response	General response: partially accepted. Comment 1: accepted. The reference in the header in NPA 2016-06 (C)was wrong. It was taken over in the draft AMC/GM and corrected. Comment 2 : not accepted. ‘precautionary landing’ was deleted from the rules, as it is captured in the definition of ‘safe landing’ in Defintions. It is identical with comments 26 and 27 on the respective rules (Part-NCC and Part-NCO).

3. Proposed amendments — 3.5. Draft regulation (draft opinion) — Part-NCO p. 19-22

comment	*9* comment by: *ERAC - European Regional Aerodromes Community* complete chapter 3.5 and 3.6 highly appreciated simplification of until today too complex regulation. The new set of IR, AMC and GM for NCO is a good example for "better regulation". Adequate and safe!
response	Noted.

comment	*34* comment by: *UK CAA* **Page No:** 19 **Paragraph No:** 3.5 / 1, NCO.OP.105 **Comment:** As this is a rule the word ‘may’ is not appropriate. The word “shall” should be reinstated.

Justification: The word 'may' infers an option. Rules are not optional.

response

Partially accepted.

The rule should not require the operator to consider an aerodrome as isolated if the operator wishes to plan fuel for an alternate aerodrome, even though that alternate aerodrome is beyond the ranges set out in point NCC.OP.105.

comment

35 comment by: *UK CAA*

Page No: 19

Paragraph No: 3.5 / 2, NCO.OP.125(a)

Comment: The new section at (a) is supported but the term 'guaranteed' is not considered appropriate in this context as this is a planning stage and the 'completion of a flight' cannot be totally predicted. It is recommended that the section is amended as shown.

Justification: Reasonable terminology for the intent of the rule.

Proposed Text:

(a) The pilot-in-command shall ensure that the quantity of energy/fuel and oil carried on board is sufficient ~~to guarantee~~ ***for*** the intended flight ~~is~~ ***to be*** completed safely, taking into account the meteorological conditions, any element affecting the performance of the aircraft, and any delays that are expected in flight, with an allowance for contingencies that may reasonably be expected to affect the flight.

response

Accepted.

Identical comment: 59.

comment

36 comment by: *UK CAA*

Page No: 20

Paragraph No: 3.5 / 2, NCO.OP.125,(b)

Comment: It is appreciated that there is an ambition to allow a degree of flexibility in the establishment of a Final Reserve Fuel but its planning mentioned here seems to have become very confused with the other fuel planning elements such as 'contingency' as stated in sub-paragraph (a). It is strongly recommended that this section be re-written as shown and that the relevant material be expanded in AMC/GM.

Justification: Clarity of purpose and intent.

Proposed Text:

(b) The pilot-in-command shall plan a quantity of fuel/energy to be protected as final reserve fuel/energy in order to ensure a safe landing**.** ~~when unforeseen occurrences may not permit~~

~~safe completion of an operation as originally planned. In determining the quantity of the final reserve fuel/energy, the pilot-in-command shall take into account:~~

~~(1) the severity of the hazard to persons or property that may result from an emergency landing after fuel/energy starvation;~~

~~(2) the terrain in which such an emergency landing is made;~~

~~(3) the weather conditions at and close to the destination/alternate aerodrome;~~

~~(4) the precision of the measurement and calculation of fuel/energy expected on board at the end of the flight;~~

~~(5) the availability of alternative landing options; and~~

~~(6) the likelihood of unexpected circumstances that might prevent or delay a safe landing at the end of the intended flight;~~

response

Not accepted.

The concept that FRF is intended for 'unforeseen occurrences [that] may not permit safe completion of an operation as originally planned' is set out in a note to ICAO Annex 6, Part I, Chapter 4.3.7.2 (and is equally applicable in non-commercial operations). While some of the criteria may also be relevant to contingency fuel assessment, they are all relevant to assessing the quantity of the FRF that needs to be carried.

The distinction between FRF and contingency fuel is clearly set out and was elevated to AMC (new AMC3 NCO.OP.125(b)).

comment

48 comment by: *FNAM*

NCO.OP.185

The FNAM was surprised to see the introduction of the phraseology "MINIMUM FUEL" and "MAYDAY MAYDAY MAYDAY FUEL" in the 965/2012 regulation without adding, at the same time, the corresponding requirements in the SERA and in the ATM/ANS regulations. Therefore, to ensure consistency between the several European regulations, the FNAM suggests to add in the SERA and in the ATM/ANS regulations the adequate corresponding requirements regarding the "MINIMUM FUEL" state and the declaration of a fuel emergency situation "MAYDAY MAYDAY MAYDAY FUEL".

In the current regulation, the "MINIMUM FUEL" is not a declaration which confers any special treatment by ATC (it is not an emergency situation) but an information message. Controllers should bear in mind that an emergency situation is possible should any additional delay occur. Hence, controllers are not required to provide priority to pilots of aircraft that have indicated or suggested that they are becoming short of fuel or have used the phraseology "MINIMUM FUEL". The term "MINIMUM FUEL" indicates that the pilot, intending to land at a specific aerodrome, calculates that any change to the existing clearance to that aerodrome might result in landing with less than the planned final reserve fuel.

	Furthermore, the FNAM would like the EASA to add some clarifications regarding this IR: Pilots & controllers shall keep in mind that PAN remains a universally prescribed means of declaring any urgency situation which requires assistance including low fuel emergency. In such case the declaration, whatever its cause, shall require priority to be given. Controllers & pilots should also understand that a PAN or a MAYDAY declaration arising because of low fuel may not necessarily use the fuel-specific phraseology suggested in PANS-ATM - pilot may make a standard form declaration first and only once it has been acknowledged explain that the problem is low fuel and priority corresponding to the declaration made is required.
response	Partially accepted. Please see the response to comment 45. Identical comments: 45 and 47 on the respective rules.

3. Proposed amendments — 3.6. Draft AMC and GM (draft decision) — Part-NCO p. 22-24

comment	*10* comment by: *ERAC - European Regional Aerodromes Community* complete chapter 3.5 and 3.6 highly appreciated simplification of until today too complex regulation. The new set of IR, AMC and GM for NCO is a good example for "better regulation". Adequate and safe!
response	Noted.

comment	*37* comment by: *UK CAA* **Page No:** 22 **Paragraph No:** 3.6 / 1, AMC1 NCO.OP.125(b) **Comment:** It is recommended that the first sentence should be amended to include 'fuel/energy' as shown. **Justification:** Clarity. **Proposed Text:** The final reserve ***fuel/energy*** quantity should be no less than required to fly:
response	Accepted.

comment	*38* comment by: *UK CAA* **Page No:** 23 **Paragraph No:** 3.6 / 5, GM1 NCO.OP.125(b)(6) **Comment:** We believe this GM should be deleted as it provides no useful information that is not obvious. **Justification:** Superfluous information.
response	Accepted.

comment	*39* comment by: *UK CAA* **Page No:** 23 **Paragraph No:** 3.6 / 6, GM1 NCO.OP.185(b)&(c), sub-paragraph (a) **Comment:** As written the 'Note' is confusing with its mention of CAT. It is recommended that this sentence be amended as shown. **Justification:** Clarity of information **Proposed Text:** Note: ~~as for CAT, the final reserve fuel is always 30 min, but~~ for Part-NCO operators, the final reserve varies from 10 to 45 min**utes**; therefore, the air traffic control (ATC) may not be aware of the amount of the remaining fuel/energy ***and therefore endurance***.
response	Accepted. The assertion that FRF varies between 10 and 45 minutes was also corrected.

5. RIA for Part NCO — 5.1. Issues to be addressed — 5.1.6. Technology enablers p. 31

comment	*17* comment by: *ESSP-SAS* Paragraph 5,1,6 describes the Technology enablers: "In 2015, many GA aircraft have fuel computers that even interface with GNSS navigators, allowing a much more precise (though never, of course, perfect) estimate of the fuel remaining and the fuel required to destination. While this clearly does not replace the need for contingency planning, it does significantly reduce the margin required by eliminating some of the major uncertainties. Operators who have invested in such systems to manage fuel risk should be permitted to take advantage of their benefits."

	However, there are not provisions in the proposal that allow to take advantage of these benefits. In detail NCC.OP.130 establish the minimum final reserve fuel for IFR flight, including provisions related to the engine type, but not to GNSS capabilities.
response	Not accepted. That paragraph in the regulatory impact assessment (RIA) was primarily aimed at NCO.

5. RIA for Part-NCO — 5.1. Issues to be addressed — 5.1.8. Safety risk assessment p. 32-35

comment	*12* comment by: *Julian Scarfe* As a small point of technical detail, on page 34 the text refers to "Cochran's C test". The statistical test used to compare rates of Poisson variables such as accident rates is a conditional test (C test) developed by Przyborowski and Wilenski. It is that test that has been (correctly) applied to the data here. Cochran's C test is used in a very different context and is not relevant here. Reference: Przyborowski J and Wilenski H (1940) Homogeneity of results in testing samples from Poisson series. Biometrika 31:313-323
response	Noted.