



EGNOS, it's there. Use it.

EGNOS in Aviation: Strategy and Implementation Status



EGNOS Service Provision Workshop



European
Global Navigation
Satellite Systems
Agency



Precise navigation,
powered by Europe



Table of Contents



**EGNOS
Benefits**



**LPV
Implementation
Status**



**EGNOS for
new Users**

IFR/SBAS benefits



IFR

Increases airport accessibility

SAFETY

↑ SAFETY due to INSTRUMENTAL aid

Reduces environmental impact

SBAS

Higher performances → Lower minima

Not Temperature/Pressure dependent

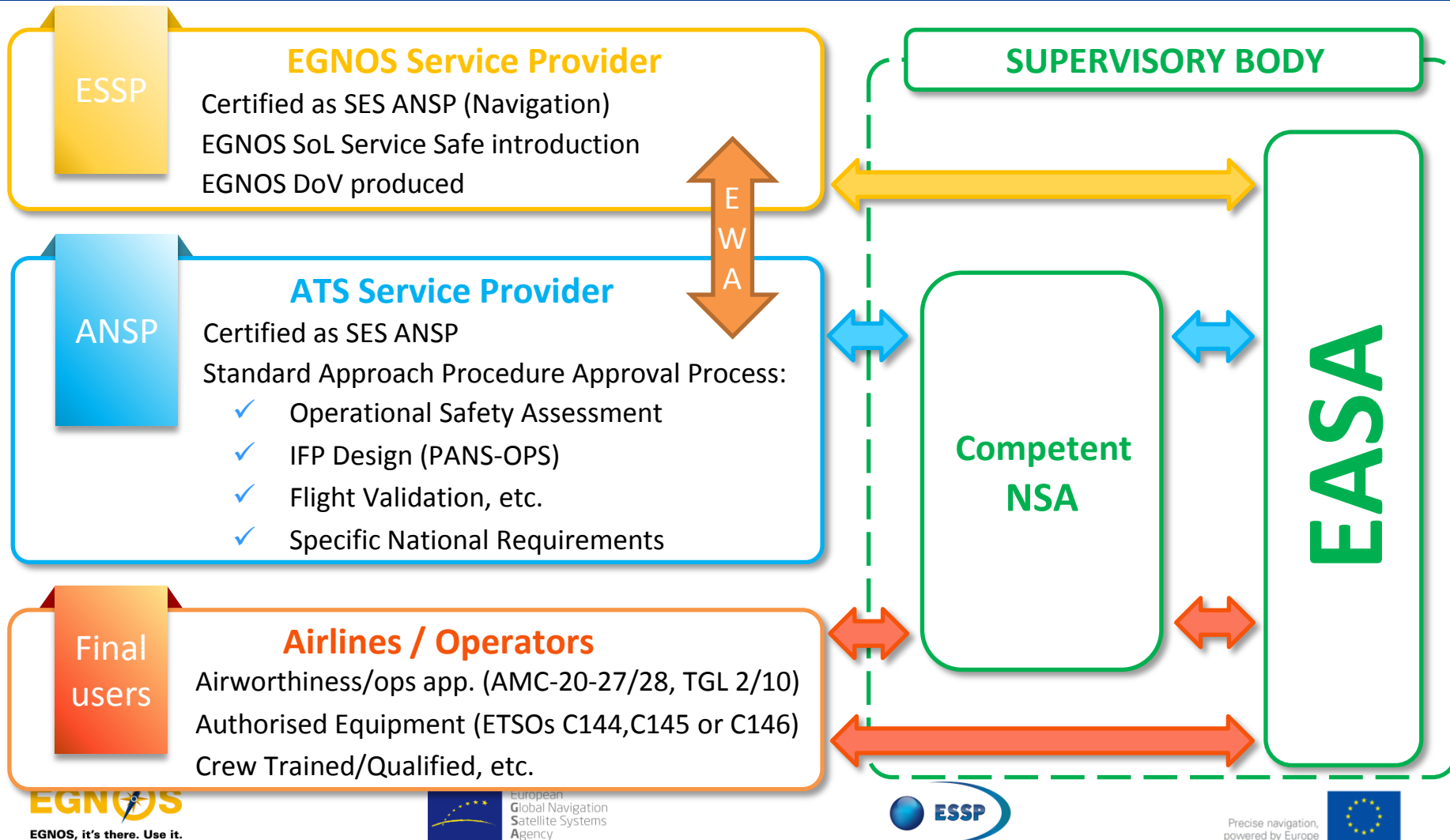
LPV Procedure is ILS look alike

No RAIM check

No ground infrastructure at the airport



LPV: WHO DOES WHAT?



EGNOS Working Agreement



Complies with Applicable Regulation

Provides support to ANSPs

Working Interfaces

EGNOS SoL Service Definition Document (SDD)

Service Arrangements

NOTAM Proposal Origination

Airport Data Tool (new EGNOS based procs registry)

GNSS Data Recording (incident/accident investigation)

Collaborative Decision Making (CDM)

Contingency Management

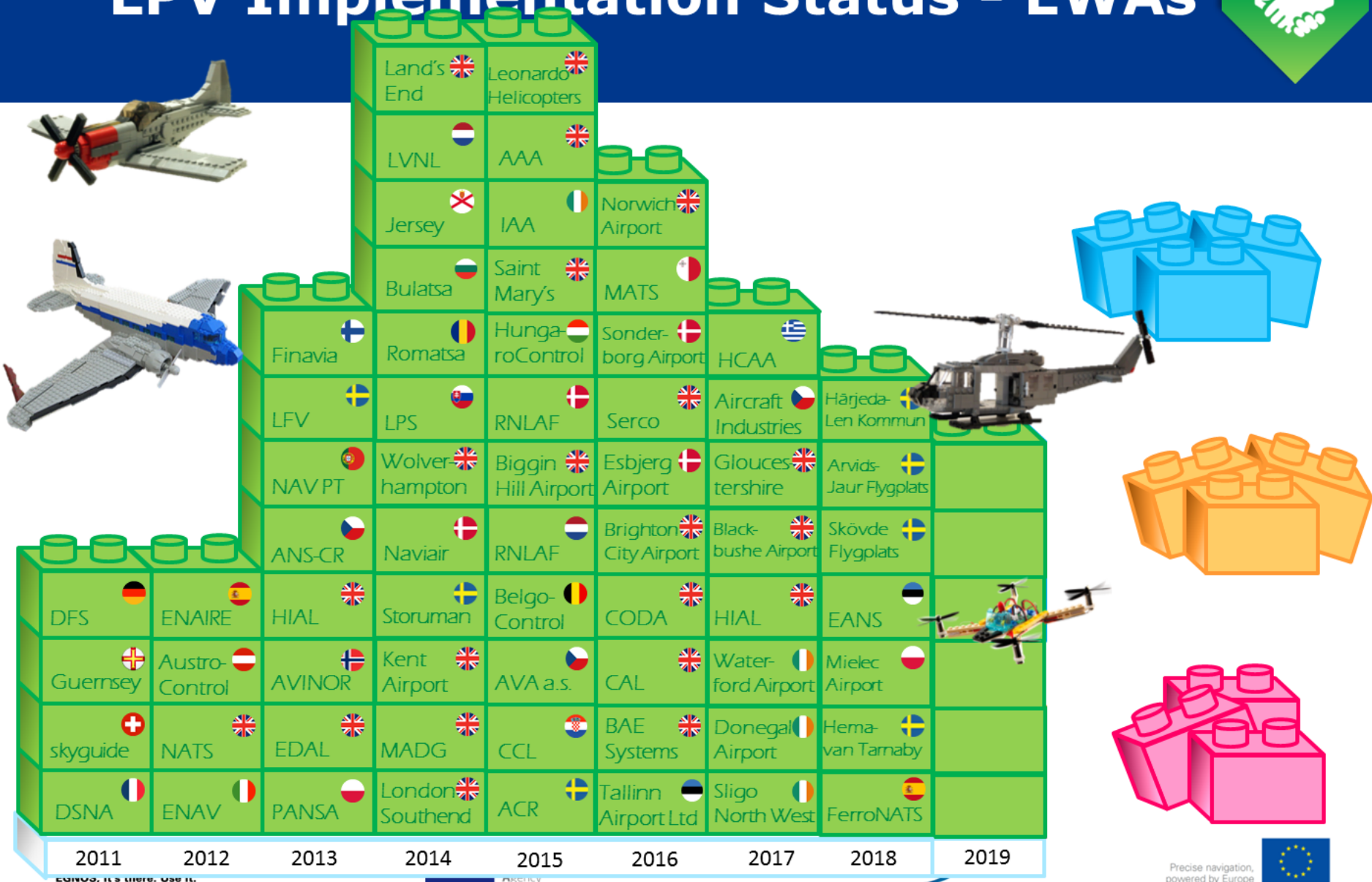


EWA

Competent NSA

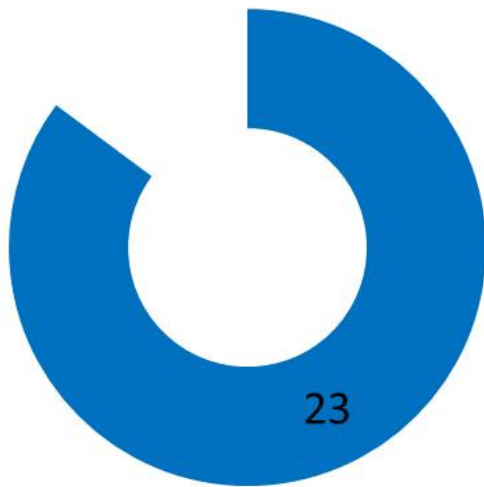
EASA

LPV Implementation Status - EWAs



LPV Implementation Status - EWAs

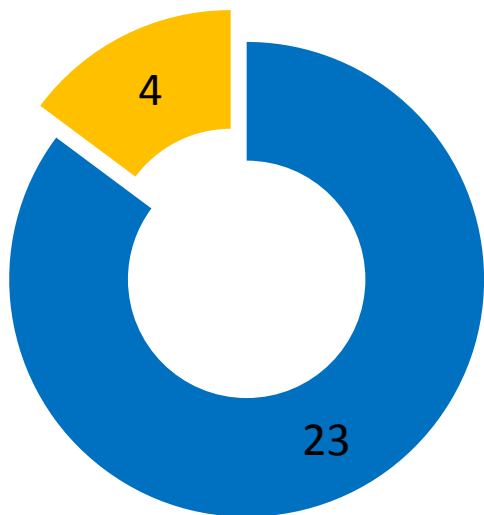
65 EWAs in place



■ EU Members

LPV Implementation Status - EWAs

65 EWAs in place



■ EU Members

■ Non-EU Members

LPV Implementation Status - EWAs

65 EWAs in place

EWAs per country

- 1 EWA
- 2 EWAs
- 3 EWAs
- 4 EWAs
- 7 EWAs
- 21 EWAs



LPV Implementation Status

COUNTRY	Airports		LPV Procedures		RNP 0.3 Procs
	APV-I	LPV-200	APV-I	LPV-200	
Austria	0	5	0	8	0
Belgium	5	0	9	0	0
Croatia	5	1	9	1	0
Czech Republic	5	0	9	0	0
Denmark	4	1	8	2	0
Estonia	1	0	2	0	0
Finland	1	0	2	0	0
France	68	48	103	67	0
Germany	23	9	37	14	0
Guernsey	1	0	2	0	0
Hungary	0	1	0	4	0
Ireland	2	0	4	0	0
Italy	11	4	25	4	0
Malta	1	1	2	2	0
Netherlands	3	0	4	0	0
Norway	17	9	26	19	0
Poland	0	12	0	26	0
Portugal	2	0	3	0	0
Romania	1	0	2	0	0
Slovak Republic	2	3	4	4	0
Spain	4	0	9	0	0
Sweden	9	0	16	0	0
Switzerland	7	3	8	5	5
United Kingdom	15	0	32	0	0

TOTAL

187

97

316

156

5



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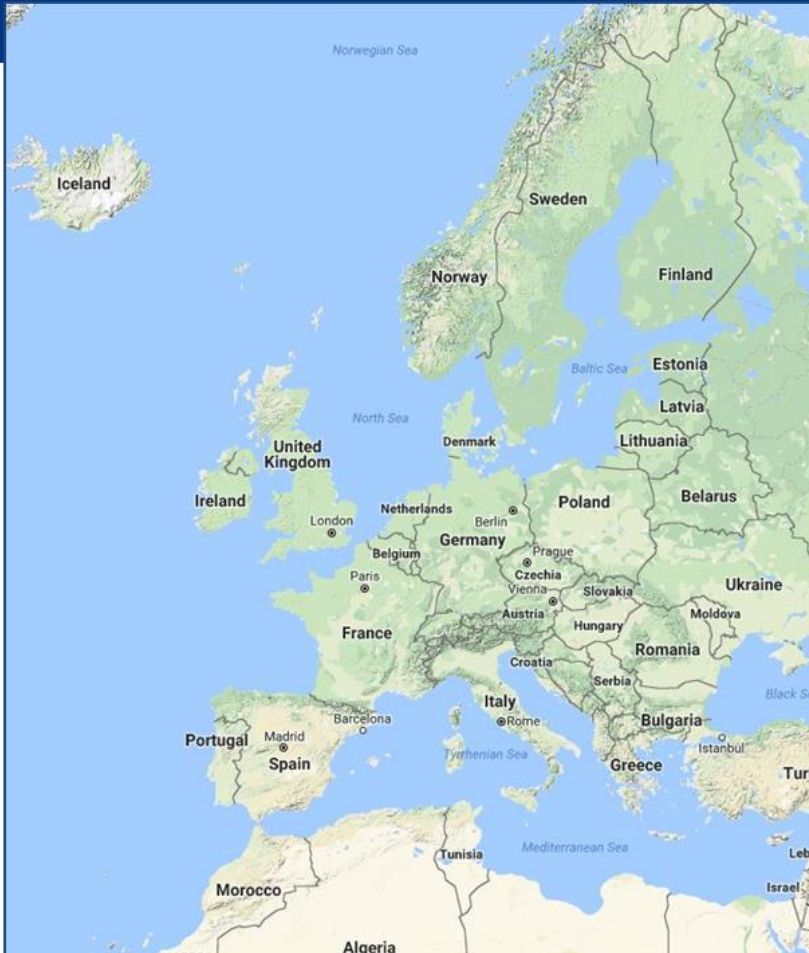
8th November 2018



LPV Implementation Status - Plans



2011



LPV Procedures
Jan-1dL

Date

The beginning

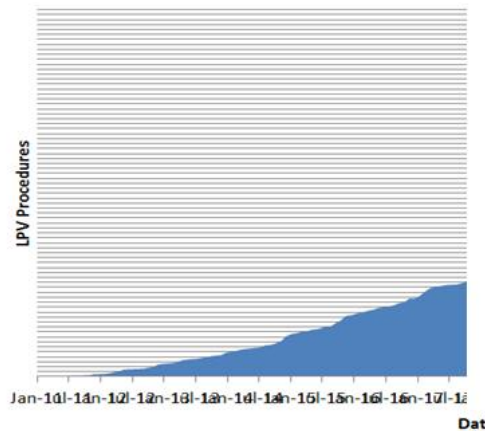


EGNOS
pioneers...

LPV Implementation Status - Plans



2018



The beginning

... where we
are today ...

472 LPVs



EGNOS
pioneers...



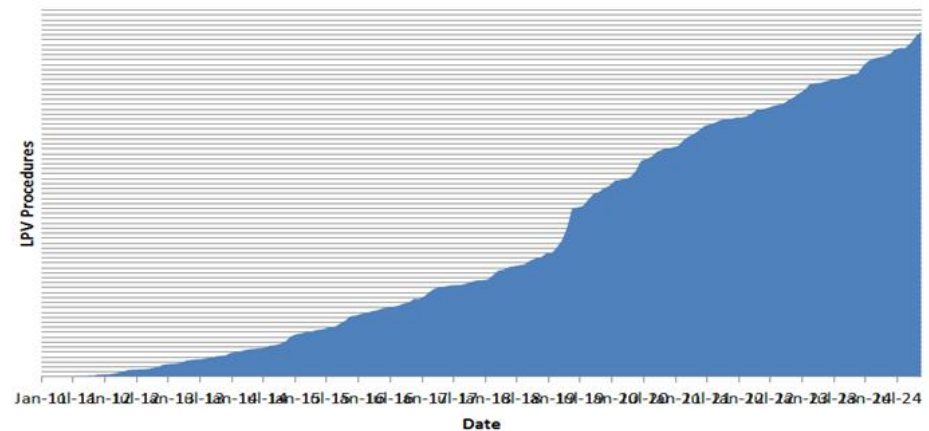
Early adopters,
EGNOS incentives

Wide introduction
into PBN plans...

LPV Implementation Status - Plans



2025



The beginning

... where we
are today ...

... The future

472 LPVs

1395 LPVs
(estimated)



EGNOS
pioneers...

Early adopters,
EGNOS incentives

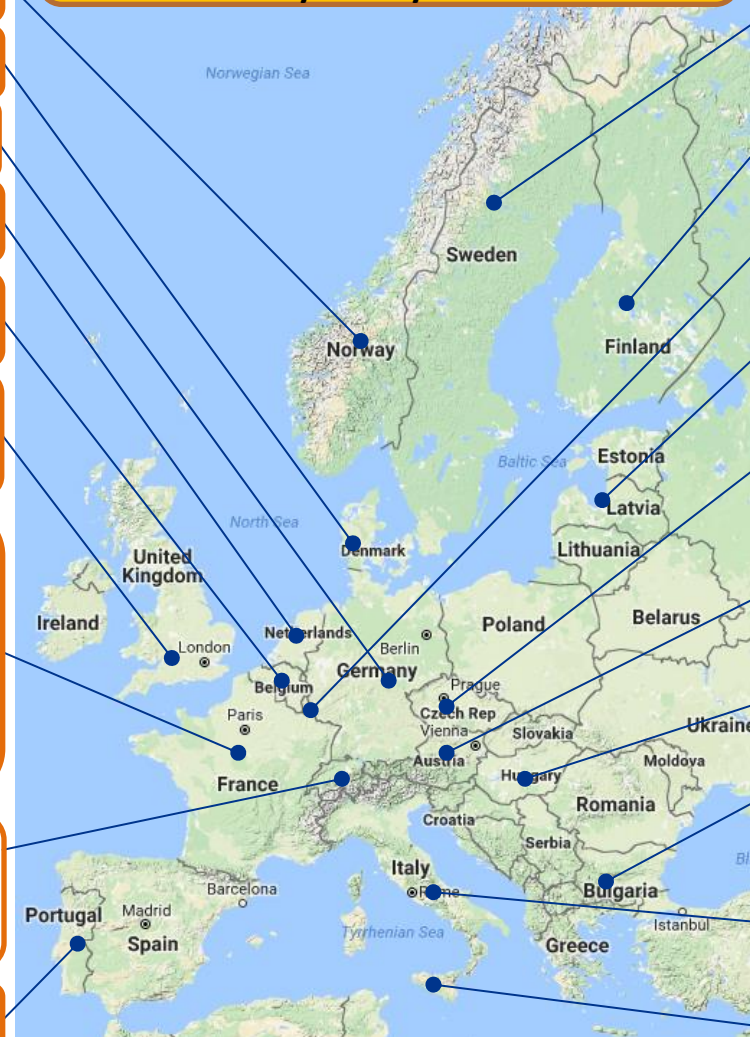
Wide introduction
into PBN plans...

EU PBN IR...

Pioneer operators in using EGNOS



370 operational units from 52 different operators in 19 countries approved and certified to fly LPV by November 2018



nextjet SVENSK PILOTUTBILDNING

JETFLITE SUOMEN ILMAILUOPISTO FINNISH AVIATION ACADEMY

Jetfly FLYINGGROUP

airBaltic

T-air for you to fly **ABS JETS**

IJM **DAMTC** **GLOBE AIR** your private jet **speedwings** Business

TRÉNER

Aviodetachment 28

Alidaunia **babcock** **AIRGREEN**

VISTA JET

Stiftelsen Norsk Luftambulans

AIR ALSIE

aerotreff.de Flugschule am FMO

ACE **Martinair**

FLYINGGROUP

Gama Aviation **Loganair** Scotland's Airline **XURIGNY** **DEA** AVIATION SOUTH WEST **Hebridean** Air Services Ltd

ASTONJET **ATI** AIR TRANSPORT INTERNATIONAL **VOLDIRECT** **AIRAILES** Aviation d'Affaires **AERIALP** **IXAIR** BUSINESS JETS **finnair** **HOP!** **pan-europeenne air service** **ATLANTIQUE AIR ASSISTANCE**

SWISS **JET AVIATION** A GENERAL DYNAMICS COMPANY **regal** **TG** Aviation

NETJETS

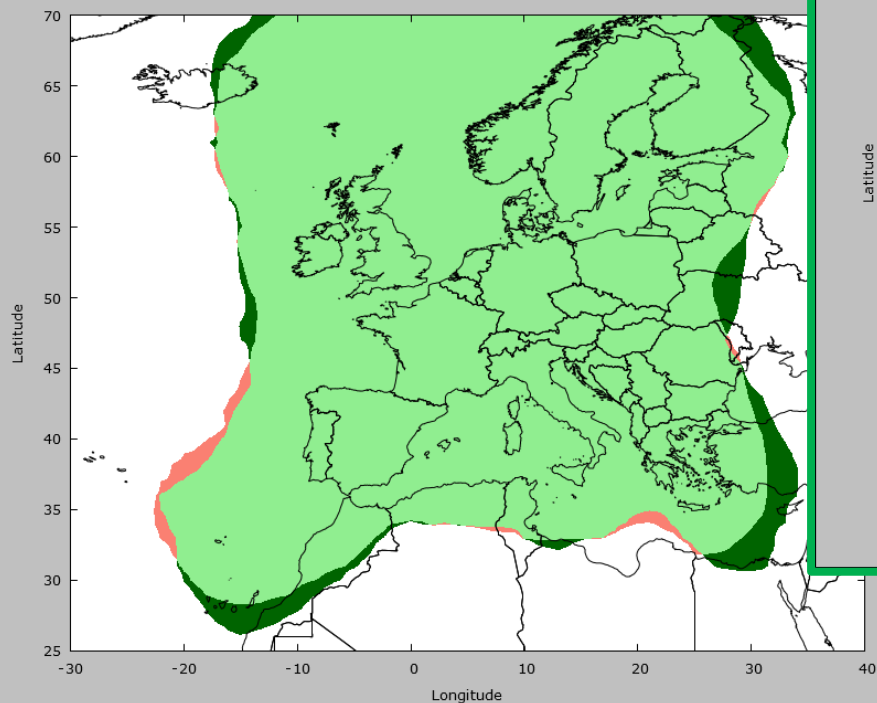
EGNOS SoL commitment maps:

Availability Maps : comparison at 99%

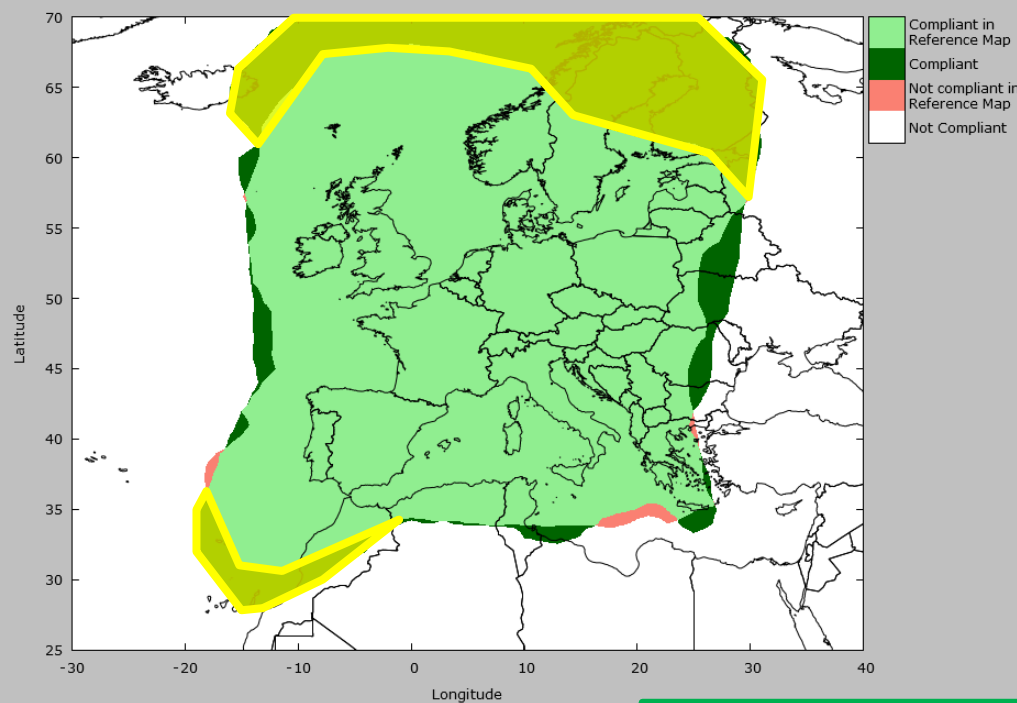


APV-I

APV-I 99% Availability - 241N YSR2-PSS2 Vs 241M



LPV200 99% Availability - 241N YSR2-PSS2 Vs 241M



LPV-200

Non-EU States



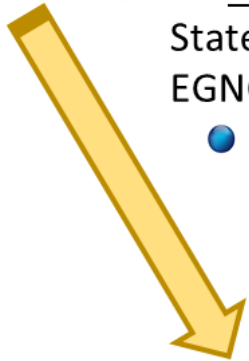
- EGNOS is directly usable in airspace of the EU territory
- EGNOS can be used at non-EU States providing that:
 - There is enough coverage of the EGNOS SiS.
 - SES Regulation is applicable:
 - Directly at the Non-EU State (e.g. EFTA States).
 - Through the proper agreement with the EU (e.g. Balkans).



Non-EU States



- EGNOS is directly usable in airspace of the EU territory
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 - Through the proper agreement with the EU (e.g. Balkans).
- **Elements to consider:**
 - An International Agreement (between EC and the non-EU State), defining the overall framework for the use of the EGNOS SoL Service.
 - An agreement/coordination scheme: if deemed necessary between EASA and the Civil Aviation Authority of the non-EU country.
 - EWA (EGNOS Working Agreement with ESSP): Established on the basis of the previous agreement/s.



- Albania
- Bosnia&Herzegovina
- Macedonia
- Montenegro
- Serbia
- Kosovo



Non-ATS users



AVIATION USERS

Airspace users



e.g. HEMS operations
at non-ATS environments

~~ANSPs~~

Organisations implementing EGNOS based
procedures **responsible for the operational
use** of the respective procedure

~~SDD v3.1
(OLD)~~

SDD v3.2
(NEW)

ANSPs

Rotorcraft
Operators

Aerodrome
Operators

Any other
organisation upon its
competent authority
approval

e.g. EGNOS based APCHs at non-ATS environments





EASA Roadmap for GA



General Aviation

6 Objectives we are committed

IFR Flying

Easier access of GA pilots to IFR rating, as a concrete measure that will improve safety.

Training

By end of 2018 the 3rd option for licensing will be fully developed providing a simple system for pilot training outside ATO.

Part-M 'Light'

Work towards a simpler and more proportionate framework for aircraft maintenance and license: a Part-M 'Light'.

Technology

Continue development of CS-STAN and other similar tools to enable the introduction of new technologies which contribute to safety.

Simpler Certification

Towards a simpler framework for certifying LSA aircraft in the short term by increasing the support to applicants e.g. workshops, document templates etc. in the long term by amending applicable regulations in order to bring a radical simplification.

Industry standards

Build on the improvements of CS-23/Part-23 on other CS or regulations in order for EASA to focus on its safety objectives and to delegate the preparation of associated standards to industry groups (ASTM, ASD etc.)

EASA has determined among its strategic objectives for GA **the introduction of IFR procedures**

....*jointly with RMT's*, enables the use of IFP at non-instrument RWYs, allowing GA take advantage of satellite based procedures increasing the safety levels.

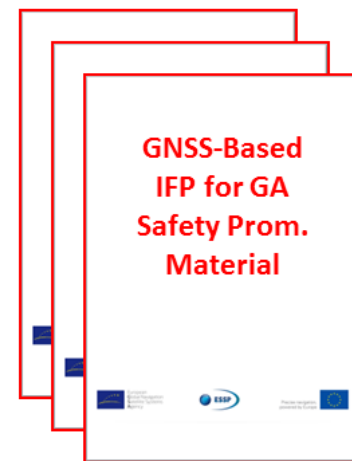
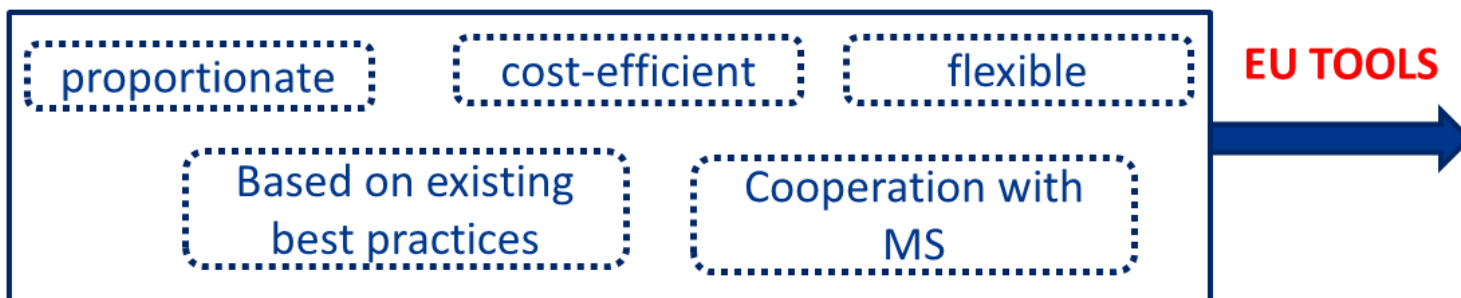
EASA Roadmap for GA



EASA has determined among its strategic objectives for GA **the introduction of IFR procedures**

New Basic Regulation 2018/1139 (replaces Reg. 216/2008)

- (6) This Regulation should provide for a number of **new tools that should support the implementation of simple and proportionate rules for sport and recreational aviation**. The measures taken in accordance with this Regulation to regulate this segment of the aviation sector should be:



RNP APCH - Non instrument RWY non towered AD

New scenario – Implementation Solution



IFR – RNP APCH

down to LPV minima

but....still work to do



Navigation
service provider

SBAS capable A/C

ETSO 145-146

Pilot licensing

BIR/DTO



3D, IFR
'similar to PinS'

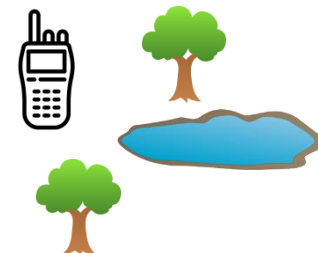
**AFIS (limited cert.)
UNICOM**

*missed
approach*

UNICOM/AFIS
A/A, A/G frequency

Class E
----- 1000 ft
Class G

DA/H



ASD

AIS
NOTAM Info

MET

QNH, VMC/IMC conditions

AD operator

Non instrument RWY

RMZ+Class G

**National
AIP/AIS**

**- Auto MET
- Near station**

**No RWY
upgrade**



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EGNOS, it's there. Use it.



Thanks for your attention!

**Now it's
your turn!**



EGNOS, it's there. Use it.



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Corporate Video

THANK YOU!