Annex R- Capacity Measures

Additional costs of measures necessary to achieve the capacity targets

1.1 In Section 3.4.9 a), the description of the additional measures required to achieve capacity targets is lacking sufficient detail. It is unclear how the listed measures compare to measures that would be necessary to achieve capacity targets in a business-as-usual scenario (i.e. without excessive traffic growth and/or without the disruptions affecting capacity performance). Please complete.

1.2 We note that Regulation 317/2019 provides that such measures:

'may be deemed necessary and proportionate in order to: (i) allow the achievement of the performance targets in the key performance area of capacity set at national level or the level of functional airspace blocks provided that the deviation from the Union-wide determined unit cost trend is exclusively due to additional determined costs related to measures necessary to achieve the performance targets in the key performance area of capacity'

1.3 Consequently, it is not apparent that there is a basis for the IAA to accept such measures only to the extent that they are assessed to be additional to a counterfactual 'Business-as-usual' scenario, as opposed to all additional determined costs which are related to necessary and proportionate measures to achieve the performance targets in the key performance area of capacity, as per the approach taken for RP3.

1.4 Notwithstanding this, we have reconsidered the measures listed to add a comparison to a 'Business-as-usual' scenario, and reported the cost forecasts accordingly. The main question which then arises is what a 'Business-as-usual' scenario for the purposes of these measures is. We note that outturns and trends in 2019, 2022, and 2023 can broadly be considered 'Business-as-usual', and are also the years which are driving the DUC baselines for the purpose of the short-term and long-term trend calculations. Having regard to this, we have taken the following approach:

- For measures relating to staffing levels, we take the most recent full year outturn staffing level as the 'Business-as-usual', namely 2023. That is, in particular, we now exclude any costs associated with replacement of existing staff.

- For measures relating to investments to achieve the capacity targets, these are investments in systems which have not been made for 15-20 years, and so are not 'Business-as-usual'. We have also considered the extent to which capital costs of the corresponding system (which is being replaced) were in the cost base in 2019 and 2024. If so, then some of the costs of the new system would be considered 'Business-as-usual' relative to the DUC baselines.

1.5 The key measures which the IAA has assessed to be necessary and proportionate to achieve the En Route capacity targets relate to significant investments by AirNav Ireland in its ATM systems, and in its operational staffing levels, particularly ATCOs and engineers. We have set out summary details below, and quantified the additional Determined Costs associated with each measure in Tab 3.4.9 of the draft Performance Plan. Full details are available in the relevant sections of the IAA's Draft Decision and Final Decision documents, and, in the case of operating cost related measures, the efficiency assessment and forecasting analysis set out in the CEPA/THINK reports.

1.6 We have not included all possible measures, but just the primary ones together with the primary measures required to facilitate them (such as the costs of training the new ATCOs, or smaller investments required to facilitate the investment in the main ATM system). We have not, for example, allocated a portion of central costs such as HR to the measures, notwithstanding that certain such costs are forecast to increase partly as a result of the increased number of ATCOs and engineers.

1.7 To assess whether the deviation from the target trends is exclusively due to these measures (relative to the 'Business-as-usual' scenario), the IAA has converted the operating cost-related measures to real 2022 prices, and recalculated the DUC trend net of these measures. In that case, the short-term DUC trend reduces to -1.7% and the long-term DUC trend reduces to -1.0%. These respectively out-perform, and align with, the EU-wide target trends of -1.2% and -1.0%. We therefore conclude that the deviation from the target trends is exclusively driven by the additional determined costs of measures which are necessary and proportionate to achieve the En Route capacity targets, and also additional relative to 'Business-as-usual'.

Opex related to additional capacity measures

Measure #1: Increase ATCO staffing levels

1.8 While still meeting the target, AirNav Ireland's capacity performance has deteriorated markedly in 2023, with En Route ATFM delay reaching 0.02 min/flight, relative to a target of 0.03 min/flight. Further, almost all of this delay was ANSP attributable. With ATCO headcount again running below forecast for RP3, performance relied on overtime and an excessively high level of ATCO utilisation, as detailed in the CEPA/THINK draft and final reports.

1.9 The additional costs of recruitment refer to the cost of hiring additional ATCOs above the 2023 baseline of ATCOs. As set out in the CEPA/Think reports (both Draft and Final), we have concluded that AirNav Ireland is currently, and was in 2023, significantly under-resourced with respect to ATCOs. This has resulted in excessive utilisation, insufficient roster resilience, the deferral of investment, and, as mentioned above, a deteriorating trend in capacity performance. The deteriorating trend in capacity performance has materialised as an increase in En Route ATFM delay, along with instances of 'zero flow rates' being imposed.

1.10 The CEPA/THINK forecast ATCO requirement out to 2029, while being

somewhat lower than the level proposed by AirNav Ireland, is based on the assumption of addressing the issue of under-resourcing, without adding excessive staff. We have only included the costs relating to the efficient number of additional ATCOs forecasted to be required by the CEPA/Think analysis, which falls below the level proposed by AirNav Ireland in its Business Plan submission.

1.11 We have quantified the cost of additional ATCOs required by AirNav Ireland to expand capacity and ensure the ANSP can meet its capacity targets in RP4 to be equal to €10.2m by 2029. Note that this amount is now exclusive of the number of ATCOs that will be required to counteract the rate of forecast attrition (i.e. 'Business-as-usual'), and is an estimate of the cost of hiring additional ATCOs above the 2023 baseline of ATCOs only, to remedy the aforementioned understaffing issues.

Measure # 2: Increase Engineer Staffing Levels

1.12 Engineers form the second largest staff cohort, after ATCOs, and are responsible for day-to-day maintenance, and supporting the development and delivery of capital projects. As a result, we expect that the required number of engineers is broadly linked to the size of AirNav Ireland's asset base and to Capex activity. AirNav Ireland did not achieve full delivery of its RP3 investment programme, and was also unable to deliver the full scale RP2 programme, highlighting under-resourcing.

1.13 Similar to ATCOs, on the basis that safety requirements cannot be subject to trade-offs, the primary basis upon which we concluded an increase in engineers was necessary, relative to the average headcount of 2016-2023, is to deliver the investment programme, in particular the major investments in the ATM systems.

1.14 We concluded that a step increase in engineers is necessary to deliver key investments. We also concluded that AirNav Ireland's Business Plan overstated the requirement, but that our adjusted estimate can be considered necessary and proportionate to deliver the investment programme, and consequently to achieve the capacity targets. We note that our lower forecast of engineer staffing requirements was generally supported by airspace users.

1.15 We have quantified the proportionate cost of this measure as €4.3m by 2029. This has been quantified exclusive of attrition which we consider to be 'Business-as-usual', i.e. all of the engineering headcount included is again entirely additional to the baseline calculated by CEPA/Think.

Measure #3: Recruitment of new OMS staff

1.16 In its Business Plan submission, AirNav Ireland estimated that the level of Operations Management and Support (OMS) staff needs to increase to a total of 83 by 2029, to free up ATCOs from such administrative tasks, enabling the productivity and efficiency of ATCOs to be maximised in relation to the provision of capacity and delivery of the investment programme. Through subsequent

engagement, AirNav Ireland has provided further details of the specific roles being created.

1.17 We and CEPA/THINK have concluded that this is an efficient and proportionate measure, which partly offsets what would otherwise be a requirement for further increases in ATCOs/Engineers. We conclude that this is a necessary measure and proportionate to achieve the capacity targets. It is also fully additional relative to 'Business-as-usual', i.e. these staff do not feature in the baseline and would not be otherwise required. We have quantified the cost of this measure as €3.7m by 2029.

Measure #4: Other non-staff Opex

1.18 A number of Other Opex measures have been identified which are required to achieve the local capacity targets, either by facilitating the delivery of additional ATCOs to be recruited as per measure #1, or to facilitate the new ATM system. We have estimated the proportionate cost of these measures only to the extent they are deemed 'additional', as described below.

1.19 The largest such cost item line relates to the cost of training the required new ATCOs, which is approximately €2m per year, trailing off towards the end of RP4. Over RP4, AirNav Ireland intends to intake 123 trainees, with 95 estimated to complete training over the period. The c.€2m per year is entirely additional to the baseline situation which would be required irrespective of measures to achieve the capacity targets. The training cost associated with additional capacity measures represents approximately 20% of the entire training cost forecast allocated to the En Route charging zone.

1.20 Separately, driven by the new ATM systems, which are discussed further below, we also forecast a forecast step increase in AirNav Ireland's cost of maintenance and spares, particularly at the end of RP4. We have quantified the total costs of this measure as approximately €1.9m in each year of RP4. We note however we have included smaller step changes than proposed by AirNav Ireland to take account of potential efficiencies from contract renegotiations. Only the proportion of maintenance and spares deemed additional to the baseline (i.e. related to investments which are themselves additional to the baseline) has been included in the quantification of Measure #4.

Measures to Achieve the Capacity Targets- New Investments

Introduction- Low baseline capital costs

1.21 Many of the investments that AirNav Ireland is presenting for RP4 are needed to replace systems which have become fully depreciated and in respect of which, no depreciation costs exist in the current cost base. The most significant example of this is the TopSky ATC One system which will replace the existing ATM system that has been in use since 2008. AirNav Ireland's capital costs have up to now been at a level that is lower than what we would estimate to be optimal. In the draft Performance Plan submitted in October we have already accounted for what we see as an ambitious capital investment programme and

have only allowed 80% of AirNav Ireland's proposed investment costs in the determined cost base.

1.22 We consider that if we were to further reduce the extent of investment costs in the determined costs, it may need to come at the expense of critical systems being replaced/upgraded, thus degrading AirNav Ireland's performance.

1.23 In the sections below, we outline the investments that we consider are necessary and proportionate to facilitate AirNav Ireland in achieving the capacity targets, relative to a 'Business-as-usual' scenario where AirNav Ireland continues to not make these investments. The measures are quantified in Section 3.4.9 of the Performance Plan.

Measure #5- Investment in Main ATM system

1.24 We have identified that major investment in the main ATM system is driving incremental capital costs for AirNav Ireland over RP4. Such an investment has not been made in RP1, RP2, or RP3, and consequently this investment is additional to any 'Business-as-usual' requirement. The current ATM system, while still functional, has been in use for 17 years, and so was fully depreciated by 2019, but must be replaced to enable AirNav Ireland to meet the capacity targets, as well as to bring about other benefits such as CP1 compliance.

1.25 Specifically, as noted elsewhere, this involves the replacement of the current ATM system with the TopSky ATC One ATM system, as well as further COOPANS builds. These projects provide for a range of enhanced functionality to support ATCO decision making, enhancing productivity, and facilitating AirNav Ireland in achieving the capacity targets. The shift towards modern, open architecture allows for new features such as Automatic Speech Recognition, Alternate Trajectories, and Conflict Resolution Advisories to be added. The automation of routine tasks is forecast to increase ATCO productivity. In our forecast ATCO requirements, the IAA has assumed ATCO productivity improvements over RP4 on the basis of this investment (and following our assessment that AirNav Ireland did not sufficiently account for this productivity improvement in its own Business Plan submission).

1.26 We have quantified the capital costs of investing in the TopSky ATC One system, and in the planned COOPANS builds over RP4, at just under €5m by 2029.

1.27 As mentioned above, the current ATM system has been in use for approximately 17 years and so was fully depreciated by 2019. The associated capital costs therefore do not feature in the DUC baseline years of 2019 and 2024. The reintroduction of such capital costs into the cost base is of course not indicative of inefficiency or cost underperformance, but rather the effect of investment which is necessary to achieve the capacity targets, and the commonly observed 'lumpy' nature of such major investments by ANSPs or airport operators.

Measure #6- Investment in contingency ATM System (CASDS)

1.28 AirNav Ireland proposes to invest in a new contingency ATM system, on the basis that it is necessary to ensure that the capacity targets can be met. It will provide increased capacity when relied upon over strips, or the current contingency system, and will mean that continuity of service quality is assured in such instances.

1.29 As with the main ATM system, the current contingency system has been in use since 2008 and is fully depreciated, and no associated costs are included in the existing cost base. We note that, similar to the investment in the main ATM system, this is not a 'Business-as-usual' investment.

1.30 If this project is not delivered, there is a risk that the existing system will become unserviceable. This would lead to a reversion to a manual fallback system which would cause significant flow control issues in Irish controlled airspace. We recognise that this would impact on AirNav Ireland's ability to meet the capacity targets.

1.31 We conclude that this investment is necessary and proportionate to ensure that the capacity targets can be achieved. We have quantified the capital costs of investing in the contingency ATM system over RP4, relative to a 'Business-as-usual' scenario whereby this investment is not undertaken, at just under €1m by 2029.

Measure #7- Investment in RADAR Systems (National RADAR Upgrades)

1.32 AirNav Ireland has proposed a national radar upgrade programme which is continuing from RP3. Many of the existing RADARs were installed between 2005 and 2011, are again fully depreciated, and many of the components have reached the end of their useful life.

1.33 AirNav Ireland proposes to invest in RADAR and surveillance systems, in support of the provision of air traffic control services, in particular by replacing RADAR components that have reached end-of-life. The IAA has verified the end-of-life status of these components, as set out in sections 15 of the Draft Decision and Final Decision.

1.34 The IAA notes that AirNav Ireland cannot provide a 5NM or 3NM radar separation service without sufficient reliable radar coverage. While services could still be provided, procedures in place to cope with the absence of RADARs typically require increased separations, which would lead to reduced capacity and productivity. Our cost forecasts and capacity targets rely on the availability of such coverage. We therefore conclude that this investment is necessary and proportionate to achieve the capacity targets. We have quantified the capital cost of this investment at just over €2m by 2029, relative to a 'Business-as-usual' scenario where these investments continue to not be made.

Measure #8- Minor capacity projects

1.35 We have also identified a number of smaller capacity related investments that primarily contribute to AirNav Ireland's ability to train ATCOs, maintain existing navigational equipment to ensure capacity is not compromised, and service or support the aforementioned investments in the ATM systems.

1.36 The building extensions to both the Ballycasey and Dublin ACCs will increase capacity for test and proving facilities needed to implement new systems. The classroom capacity that will be added to both centres is necessary to cater for the additional staff members which we have included in the Opex forecasts, as outlined above. That is, this measure is necessary to facilitate in particular Measure 1, but would not otherwise be necessary.

1.37 AirNav Ireland proposes to invest in the resilience of systems needed for service provision featuring a range of different power supplies. Modular UPS supporting TopSky ATC One will provide more resilient and scalable back-up power supplies to all ATC positions and will be more scalable to support TopSky ATC One systems. Similarly, the PV Installation is intended to ensure service continuity, and consequently capacity, is not impacted in the event of national power outages. By introducing fibre feeds in place of microwave links at certain remote sites, AirNav Ireland is working to ensure that capacity is not compromised during extreme weather conditions.

1.38 AirNav Ireland's investments in the NOKIA Service Aggregation Routers, Air Traffic Management Surveillance Tracker and Server (ARTAS) and Surveillance Analysis Support System for ATC Centres (SASS-C) projects are with a view to ensuring that AirNav Ireland continues to provide 5NM and 3NM RADAR separations. The ARTAS and SASSC systems in particular are needed to support the introduction of the new ATM system referenced above.

1.39 Finally, AirNav Ireland also proposes to invest in Distance Measuring Equipment (DME) to support En Route services in the event of Global Navigation Satellite System (GNSS) outages. We note that in the event of a GNSS outage, AirNav Ireland would need to rely on conventional NavAids to ensure that capacity is not constrained.

1.40 Consequently, these relatively minor measures are required to enable the delivery of the major measures outlined above, and are thus also additional relative to a 'Business-as-usual' scenario where those major measures are not delivered.

1.41 We conclude that the above investments are necessary and proportionate to achieve the capacity targets, and additional to a 'Business-as-usual' scenario. We have quantified the total capital costs of these investments as €1.6m by 2029.