

ATEC ANNUAL CONFERENCE

Supply and Demand of Aviation Technical Personnel

Panelists

- Paul LaPorte, Economist, U.S. Bureau of Labor Statistics
- Livia Hayes, Director, Oliver Wyman CAVOK
- Jennifer Radtke, Chief Mechanic, Boeing
- Moderator: Justin Madden, Managing Director, Engineering & Maintenance, Airlines for America



The Bureau of Labor Statistics Employment Projections: 2021-2031

Aviation Technician Education Council

March 27, 2023

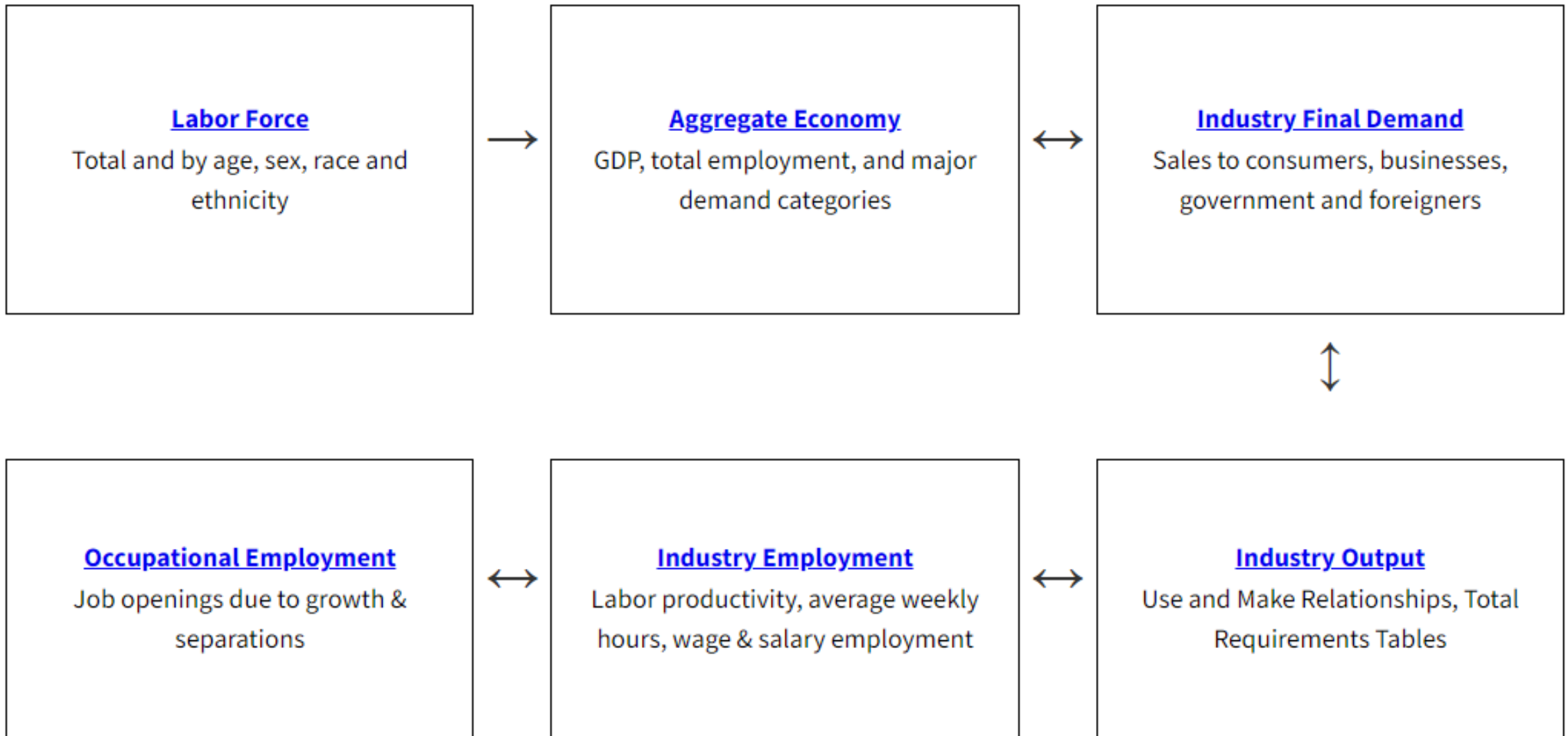


Provide estimated employment and occupational trends over a 10-year projection period.

Published annually in September.

Six components using separate procedures, models, and related assumptions provide the analytical framework used to develop the detailed employment projections.





Avionics Technicians (49-2091)

Install, inspect, test, adjust, or repair avionics equipment, such as radar, radio, navigation, and missile control systems in aircraft or space vehicles.



Aircraft Mechanics and Service Technicians (49-3011)

Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems. Excludes “Avionics Technicians” (49-2091).



Occupation	Employment 2021	Employment 2031 (projected)	Net change 2021-2031	Percent change 2021-2031
Avionics technicians	19,600	20,600	1,000	5.1
Aircraft mechanics and service technicians	131,700	139,800	8,100	6.1

Occupation	Labor force exits, 2021-31 annual average	Occupational transfers, 2021-31 annual average	Total occupational separations, 2021-31 annual average	Occupational openings, 2021-31 annual average
Avionics technicians	700	800	1,500	1,600
Aircraft mechanics and service technicians	4,000	6,700	10,700	11,500

Employed avionics technicians by industry

Industry	Employment 2021	2021 percent of occupation	2021 percent of industry
Total all industries	19,600	100.0	
Support activities for air transportation	6,800	34.9	3.4
Aerospace product and parts manufacturing	6,100	31.4	1.3
Federal govt., excluding postal service	1,400	7.4	0.1
Scheduled air transportation	900	6.1	0.3

Employed aircraft mechanics and service technicians by industry

Industry	Employment 2021	2021 percent of occupation	2021 percent of industry
Total all industries	131,700	100.0	
Support activities for air transportation	37,600	28.5	18.5
Scheduled air transportation	24,400	18.6	5.7
Aerospace product and parts manufacturing	17,000	12.9	3.5
Federal govt., excluding postal service	15,100	11.5	0.7

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Employment Projections

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The **Employment Projections (EP)** program provides information on the Nation as a whole for 10 years in the future.

NOTICES

- » Projections overview article coming soon
- » 2021-31 Employment Projections released

Data Overview >>

- Databases
- Tables
- Labor Force
- Aggregate Economy
- Inter-Industry Relationships
- Industry Output and Employment
- Occupational Employment
- Education and Training
- Employment Requirements Matrix
- Factor Analysis
- Evaluations



VIDEOS

BLS Occupational Employment Projections, 2021-31, Projected Growth

Occupation	Projected Growth
Nurse Practitioners	46%
Wind Turbine Service Technicians	44%
Ushers, Lobby Attendants, and Ticket Takers	41%
Motion Picture Projectionists	40%
Cooks, Restaurant	37%

1:31

RELEASE

...ment is projected to increase by 8.3 million jobs from 2021

...employment is projected to grow by 8.3 million jobs from 2021-31. One-third of new jobs are projected to be in healthcare and social assistance. Pandemic recovery is a key driver of projected job growth in many sectors. The Occupational Outlook Handbook features the 2021-31...

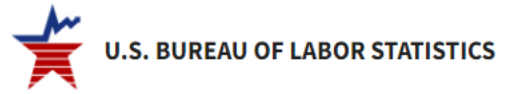
[HTML](#) | [PDF](#) | [RSS](#)

PUBLICATIONS

HANDBOOK OF METHODS

Employment Projections Overview

BLS OCCUPATIONAL EMPLOYMENT PROJECTIONS, 2021-31



Search BLS.gov

Employment Projections

Search Employment Pro. Go

EP Home	EP Publications	EP Data	EP Methods	About EP	Contact EP
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EP Data Tables

Occupations

All occupational tables in a single file [\(XLSX\)](#) ←

- [Table 1.1 Employment by major occupational group, 2021 and projected 2031](#)
- [Table 1.1A Employment by major occupational group, 2021, and projected 2031, including adjustments for realized gains](#)
- [Table 1.2 Employment by detailed occupation, 2021 and projected 2031](#)
- [Table 1.3 Fastest growing occupations, 2021 and projected 2031](#)
- [Table 1.4 Occupations with the most job growth, 2021 and projected 2031](#)
- [Table 1.5 Fastest declining occupations, 2021 and projected 2031](#)
- [Table 1.6 Occupations with the largest job declines, 2021 and projected 2031](#)
- [Table 1.7 Occupational projections, 2021-31, and worker characteristics, 2021](#)
- [Table 1.8 2021-31 Industry-occupation matrix data, by occupation](#)
- [Table 1.9 2021-31 Industry-occupation matrix data, by industry](#)
- [Table 1.10 Occupational separations and openings, projected 2021-31](#)
- [Table 1.11 Employment in STEM occupations, 2021 and projected 2031](#)
- [Table 1.12 Factors affecting occupational utilization, projected 2021-31](#)

See our [Occupational Data](#) and [Data Definitions](#) pages for additional data and information.

Industries

All industry tables in a single file [\(XLSX\)](#)



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United States Department of Labor

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Bureau of Labor Statistics > Publications > Occupational Outlook Handbook

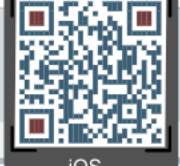

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OCCUPATIONAL OUTLOOK HANDBOOK

Home

Get the CareerInfo app for the Occupational Outlook Handbook (OOH).

Scan with your device

iOS Android


The app is available for [iOS](#) and [Android](#) devices.

- #### OCCUPATION GROUPS
- Architecture and Engineering
 - Arts and Design
 - Building and Grounds Cleaning
 - Business and Financial
 - Community and Social Service
 - Computer and Information Technology
 - Construction and Extraction
 - Education, Training, and Library

SELECT OCCUPATIONS BY

<input type="text" value="2021 Median Pay"/>	<input type="text" value="Entry-Level Education"/>	<input type="text" value="On-the-job Training"/>
<input type="text" value="Number of New Jobs (Projected)"/>	<input type="text" value="Growth Rate (Projected)"/>	<input type="button" value="GO"/>

FEATURED OCCUPATION



Recreation Workers

Recreation workers design and lead activities to help people stay active, improve fitness, and have fun.

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OCCUPATIONAL OUTLOOK HANDBOOK

Aircraft and Avionics Equipment Mechanics and Technicians

[PRINTER-FRIENDLY](#)
[Summary](#)
[What They Do](#)
[Work Environment](#)
[How to Become One](#)
[Pay](#)
[Job Outlook](#)
[State & Area Data](#)
[Similar Occupations](#)
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Summary

Quick Facts: Aircraft and Avionics Equipment Mechanics and Technicians

2021 Median Pay	\$65,550 per year \$31.52 per hour
Typical Entry-Level Education	See How to Become One
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2021	151,400
Job Outlook, 2021-31	6% (As fast as average)
Employment Change, 2021-31	9,000


[What Aircraft and Avionics Equipment Mechanics and Technicians Do](#)

What Aircraft and Avionics Equipment Mechanics and Technicians Do

Aircraft and avionics equipment mechanics and technicians repair and perform scheduled maintenance on aircraft.

Work Environment

Aircraft and avionics equipment mechanics and technicians work in hangars, in repair stations, or on airfields. The environment can be loud because of aircraft engines and equipment.

How to Become an Aircraft and Avionics Equipment Mechanic or Technician

Most aircraft and avionics equipment mechanics and technicians learn their trade at an [Federal Aviation Administration](#) (FAA)-approved aviation maintenance technician school or on the job. Some learn through training received in the military.

Pay

The median annual wage for aircraft mechanics and service technicians was \$65,380 in May 2021.

The median annual wage for avionics technicians was \$69,280 in May 2021.

Job Outlook

Overall employment of aircraft and avionics equipment mechanics and technicians is projected to grow 6 percent from 2021 to 2031, about as fast as the average for all occupations.

About 13,100 openings for aircraft and avionics equipment mechanics and technicians are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.

State & Area Data

Explore resources for employment and wages by state and area for aircraft and avionics equipment mechanics and technicians.

Similar Occupations

Compare the job duties, education, job growth, and pay of aircraft and avionics equipment mechanics and technicians with similar occupations.

More Information, Including Links to O*NET

Learn more about aircraft and avionics equipment mechanics and technicians by visiting additional resources, including O*NET, a source on key characteristics of workers and occupations.

What They Do ->

Previous employment projections, 2010-2020

Occupation	Employment, 2010	Projected change, 2010–20*			Annual median wage, 2010	Education	Work experience	On-the-job training
		Numeric	Percent	Growth adjective				
Aircraft and avionics equipment mechanics and technicians	142,300	9,100	6%	Slower than average	\$53,220	Postsecondary non-degree award	None	None

* Numeric and percent changes are rounded, but they are calculated from unrounded figures for current and projected employment.

Source: Bureau of Labor Statistics Spring 2012 Occupational Outlook Quarterly



State Projections: Projectionscentral.org

This site is sponsored by the [US Department of Labor](#)

Projections Central

State Employment Projections
Projections Managing Partnership (PMP)

Labor Market Projections

Projections of industry and occupational employment are developed for all states and the nation as a whole. Each state is responsible for developing its state's projections and makes them available to the public. This site helps customers find the most current projections information, provides links to additional sources and is a resource for state analysts that develop the projections. One of the most important uses of the projections is to help individuals make informed career decisions. Information on this site allows projected employment growth for an occupation to be compared among States. It also allows projected employment growth among occupations to be compared within one state.



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Pilot and Technician Outlook 2022–2041

Jennifer Radtke, Chief Mechanic

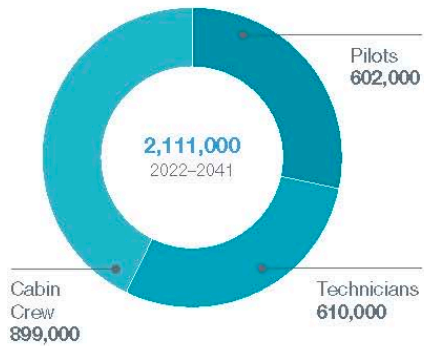
The Demand for Maintenance Professionals

[Boeing's 2022-2041 Pilot Technician Outlook](#) projects that the North American market will need 134,000 new technicians in the next 20 years, demand for the North America commercial aviation market has eclipsed pre-pandemic levels by nearly 10%.

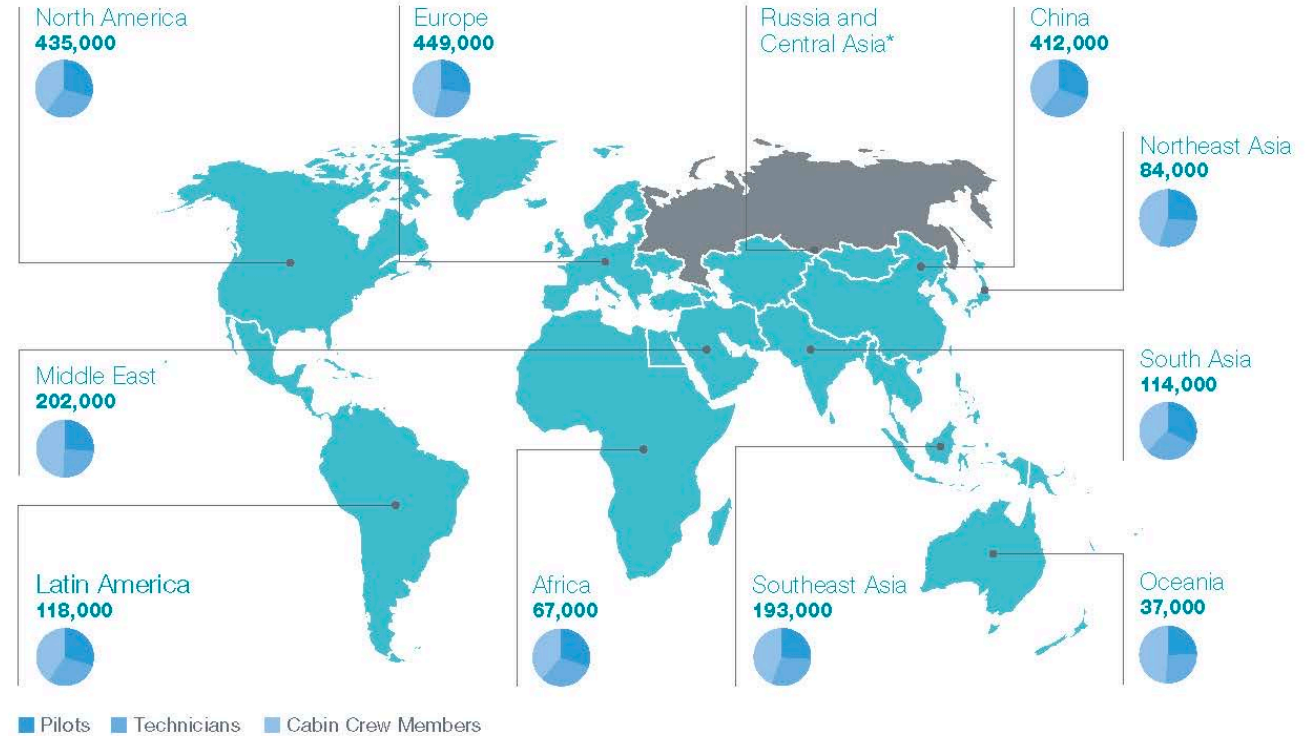


Pilot and Technician Outlook by Region

New Personnel Demand



Market Outlook Summary



*PTO 2022 does not include a forecast for new personnel in Russia due to sanctions against aircraft exports.

Outlook on a Page

New Personnel Demand

Region	Africa	China	Europe	Latin America	Middle East	North America	Northeast Asia	Oceania	South Asia	Southeast Asia	World
Total New Personnel	67,000	412,000	449,000	118,000	202,000	435,000	84,000	37,000	114,000	193,000	2,111,000
Pilots	20,000	126,000	122,000	35,000	53,000	128,000	22,000	9,000	37,000	50,000	602,000
Technicians	21,000	124,000	120,000	35,000	50,000	134,000	24,000	10,000	34,000	58,000	610,000
Cabin Crew	26,000	162,000	207,000	48,000	99,000	173,000	38,000	18,000	43,000	85,000	899,000



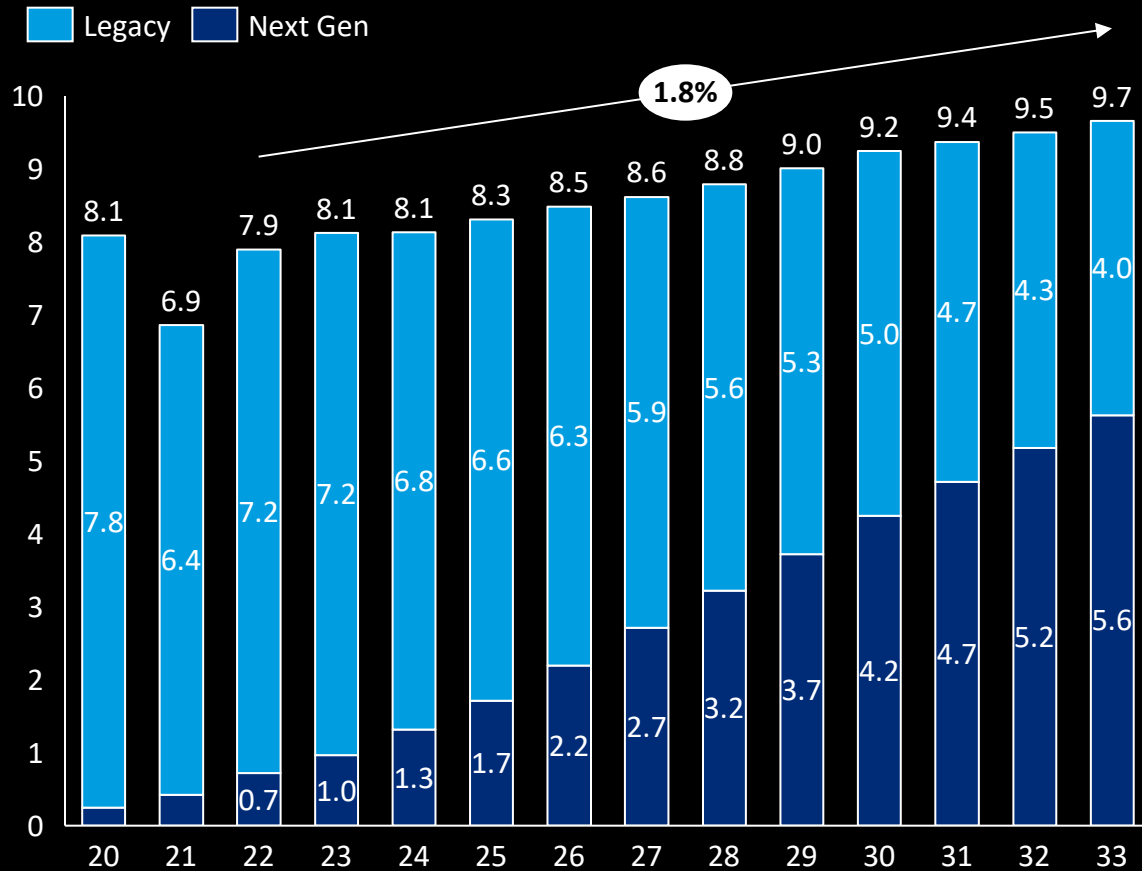
Supply and demand of aviation technicians

A TEC Annual Conference
March 27, 2023

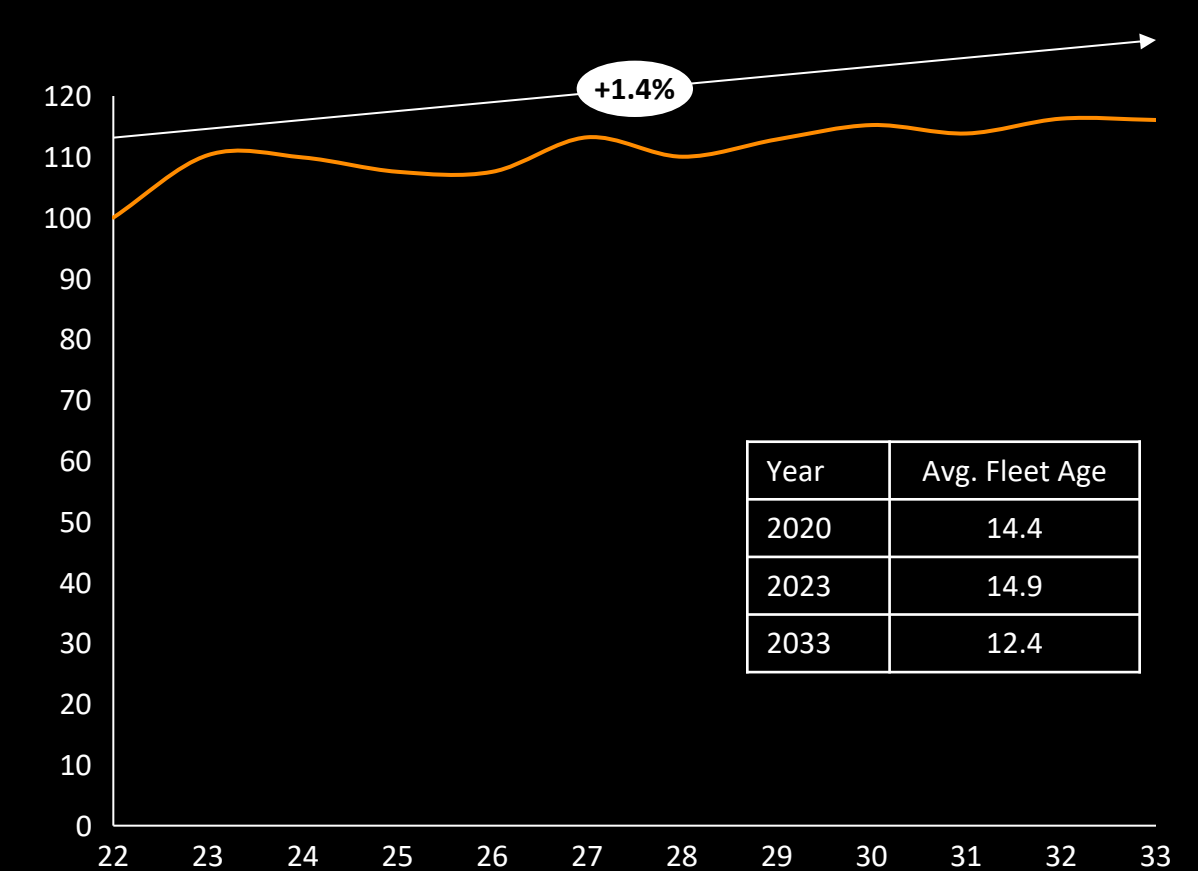
Livia Hayes

THE NORTH AMERICAN COMMERCIAL FLEET WILL CONTINUE TO GROW AND ALONG WITH IT, MAINTENANCE DEMAND

North America Fleet Forecast, by aircraft generation
2020-2033, by aircraft generation



North America Manhours Demand, Indexed to 2022
2022-2033



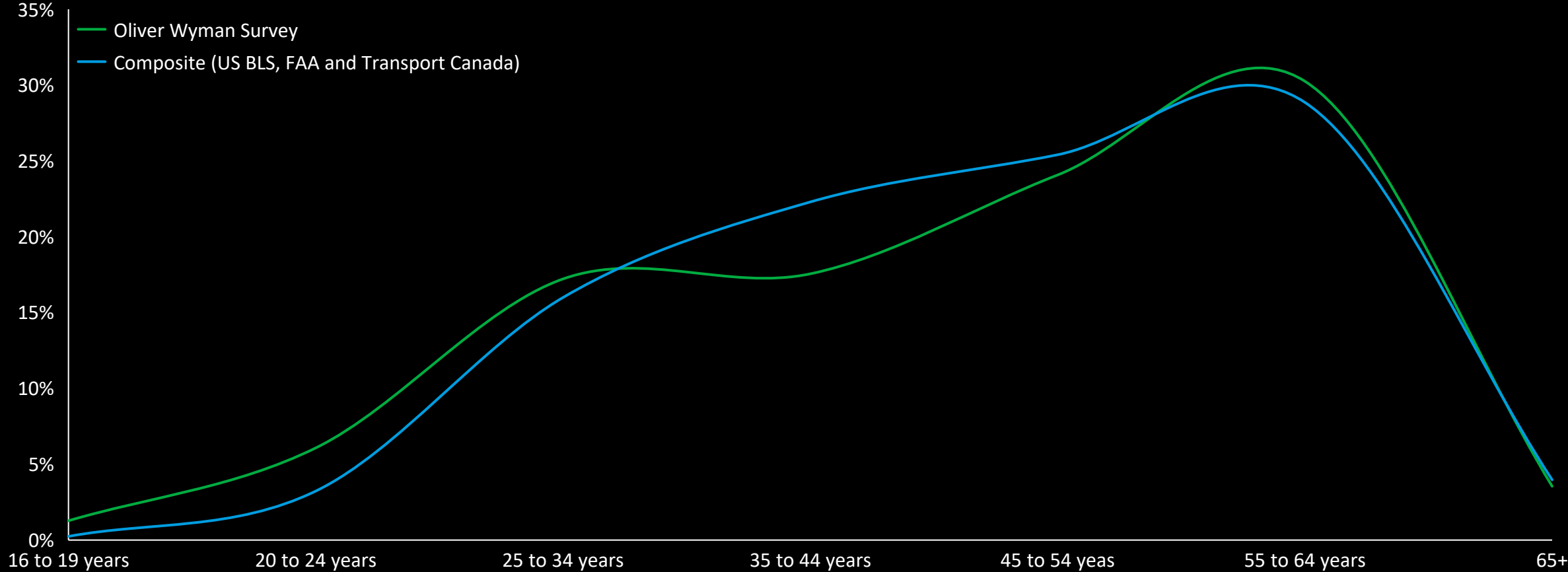
Year	Avg. Fleet Age
2020	14.4
2023	14.9
2033	12.4

Source: 2023 Oliver Wyman Fleet & MRO Forecast

UNFORTUNATELY WE HAVE AN AGING WORKFORCE AND COVID EARLY RETIREMENTS JUST EXACERBATED THE SITUATION

Maintenance Technician Age Curves

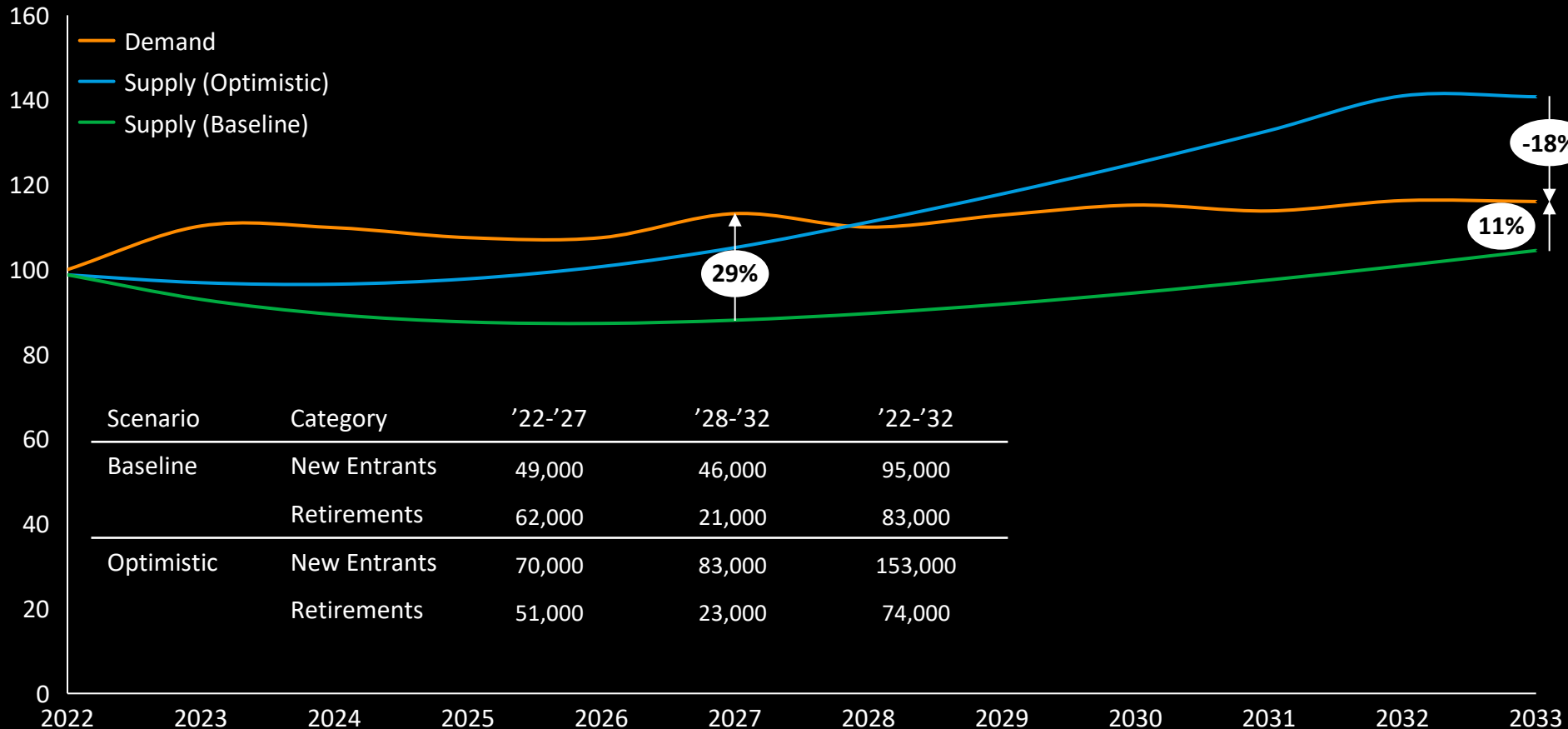
By data source



Source: US Bureau of Labor Statistics, Transport Canada, Federal Aviation Administration, OW Survey, OW analysis
Note: Oliver Wyman survey includes certified and non-certified personnel with working at independent MROs, regional, mainline, and cargo carriers

WHEN WE MAP MAINTENANCE TECHNICIAN DEMAND TO SUPPLY WE START TO SEE SOME BIG PROBLEMS

North America AMT Supply and Demand
Indexed to 2022 levels



- Baseline
 - Hiring return to pre-COVID levels and growth trends
 - Retirement ages return to their pre-COVID average
- Optimistic
 - Hiring doubles by 2027; returns to pre-COVID growth rate after 2027
 - Retirements slow as average retirement age increase by 5 years

Scenario	Category	'22-'27	'28-'32	'22-'32
Baseline	New Entrants	49,000	46,000	95,000
	Retirements	62,000	21,000	83,000
Optimistic	New Entrants	70,000	83,000	153,000
	Retirements	51,000	23,000	74,000

Source: ATEC Pipeline Report, Federal Aviation Administration, Transport Canada, OW Survey, OW analysis
 Note: Oliver Wyman survey includes certified and non-certified personnel with working at independent MROs, regional, mainline, and cargo carriers

SOLUTIONS TO THE MECHANIC SHORTAGE EXIST BOTH ON THE SUPPLY AND DEMAND SIDE

SUPPLY



- Start partnerships with schools early
- Increase governmental funding
- Partner with industry to provide tuition assistance and a path to employment
- Consider decreasing the hours required to obtain a license or allow combination of classroom and employer OJT
- Consider group minority hires

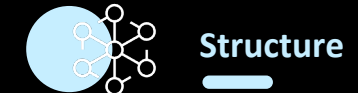


- Consider increasing the retirement age
- Provide flexibility and focus on total rewards versus just hourly pay
- Emphasize pathways for growth
- Improve culture
- Create transferrable training credentials

DEMAND



- Incorporate Active Supervision to drive up technician application
- Increase adoption of digital tools to error proof documentation and better plan and flow work
- Share data up and down the supply chain to avoid labor inefficiency



- Continuously review the current maintenance program to identify opportunities for improvement
- Reconsider the role of the licensed technician for all tasks
- Consolidate and extend contractual relationship between operators and suppliers

KEY TAKEAWAYS



An existing manpower shortage was compounded by COVID-related challenges

The shortage is here and is expected to increase over the next five years

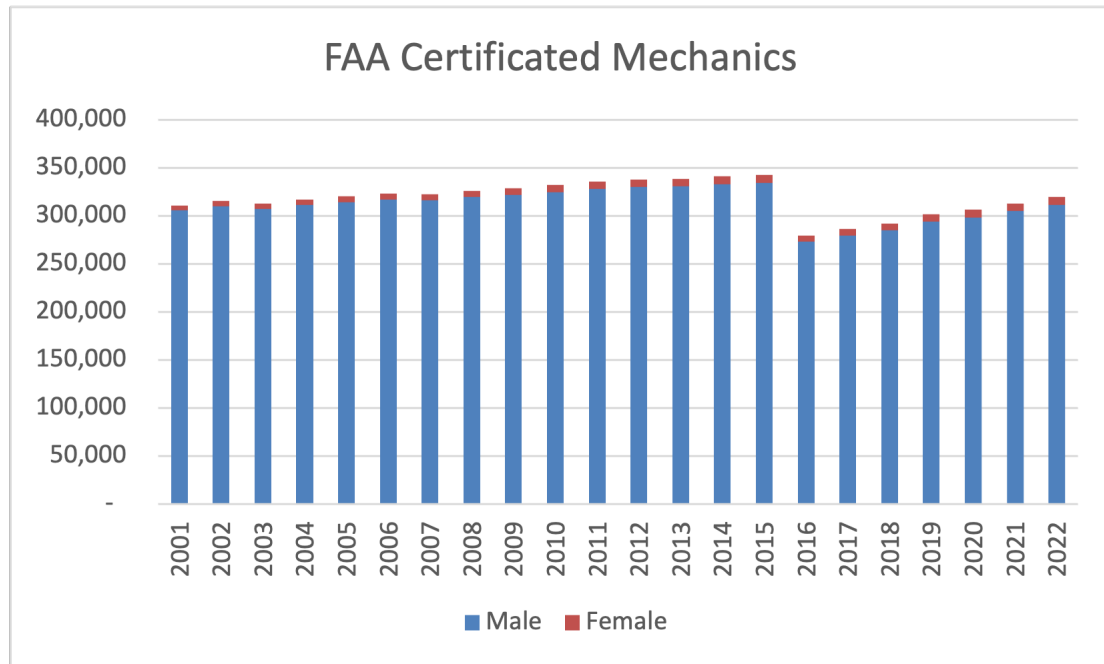
Potential solutions exist including upstream recruiting and financial sponsorship

READ OUR LATEST FORECAST ON THE GLOBAL FLEET AND MRO SECTOR

Oliver Wyman and our parent company Marsh McLennan (MMC) have been monitoring the latest events and are putting forth our perspectives to support you clients and the industries you serve around the world. Read the latest [Global Fleet & MRO Forecast 2023-2033](#) for more information.



Mechanic Supply



- Last year, 7,119 individuals obtained FAA mechanic certification, a 2.75 percent increase over 2021.
- In 2021, 6,929 individuals were certificated, a 33 percent increase from the previous year and the biggest jump in recent history (largely expected given the pandemic-induced backlog)
- The increase fell short of 2019 levels and did not make up for the previous year's 30 percent drop in certifications.
- In short, the rate of mechanic certifications is relatively flat.



NOVEMBER 2022



2022 PIPELINE REPORT & AVIATION MAINTENANCE TECHNICIAN SCHOOL DIRECTORY



Mechanic Demand

- Last year, major airlines hired a quarter of all A&P graduates, up from 15 percent in 2020. This will put more pressure on sources that traditionally feed skilled technicians to large carriers, such as repair stations and regional carriers, to fill open positions.
- The pipeline will need to increase production by at least 20 percent to meet projected workforce demand.
- In comparison, A&P schools—which source 67 percent of all new mechanics—are only increasing enrollment about 2 percent a year.





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Questions?

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