



Alaska's Future Workforce Demand- Haven't We Been Here Before?







Presented to the Resource Development Council
January 3, 2008

Today's Topics

- AEDC
- A look back: The TAPS experience
- Alaska's future workforce needs
- The competition for workforce
- One piece of the solution: PARW

About AEDC

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- More than 180 government and private sector investors
 - Assist Anchorage and Alaska companies to grow beyond our city and Alaska
 - Market Anchorage and Alaska to outside businesses and industries
 - Clearing house for business opportunities, generate viable opportunities for investors

We've Done This Before: TAPS

- TAPS- \$24 billion project in 2004 dollars
- TAPS employed 21,000 direct workers at peak
- AK Population Grew 34%, or 101.5K: 1970 to 1980
- AK population grew by over 50K: 1974 to 1977
- Avg. household income grew 59%: 1973 to 1975
- At peak construction in December, 1975, 41.4% of pipeline project workers were Alaska residents
- State oil revenue increased from \$230 million in 1975 to \$5.7 billion in 1982 (both in 1995 dollars)

Source: Information Insights, "Stranded Gas Development Act Municipal Impact Analysis," 11/04

Workforce Shortages During TAPS Construction: A Ripple Effect In Alaska's Labor Pool

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- Food services
 - Health care
 - Retail
 - Commercial fishing
 - Tourism
 - Law enforcement
 - Education
 - Construction
 - Heavy equipment operators
 - Clerical
 - Mechanics
 - Electricians
 - Plumbers
 - Carpenters
 - Restaurant and bar workers
 - EMS and Firefighters
 - Government workers
 - Logistical workers
 - Welders

The Future?

Impacts Just From A Gas Pipeline Project

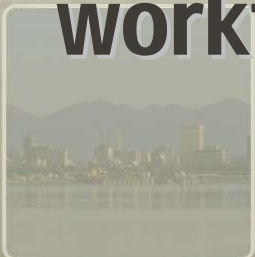
- Up to \$30+ billion project(s)
- 9,300 direct and induced jobs per year on average during construction
- Up to 10,400 increase in Alaska population during construction
- \$284 million (2004 dollars) in new National Highway System roads and bridge projects prior to pipeline construction
- Significant additional infrastructure improvements yet to be defined for ports of Anchorage, Seward, Whittier, Haines
- Likely significant improvements required on local road systems and the Alaska Railroad
- Regional impacts to law enforcement, EMS and Fire services, schools, general government services, training infrastructure and programs, health care, etc. that will require significant funding and workers

Source: Information Insights, "Stranded Gas Development Act Municipal Impact Analysis," 11/04



The Perfect Storm

**The looming challenge of meeting Alaska's
workforce needs in the coming decade**



Potential Projects and Peak/Total Workforce Requirements Over the Next Decade

<i>Project</i>	<i>Estimated Jobs</i>	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<i>NPRA</i>	<i>1,000</i>	▲											
<i>Prudhoe Region</i>	<i>1,750</i>	▲											
<i>ANS Gas Line</i>	<i>7,500</i>						▲	—	—	—	—	▲	
<i>ANS Gas Line Ops</i>	<i>500</i>											▲	—
<i>C.I. Spur/Bullet Line</i>	<i>2,000</i>					▲	—	—	▲				
<i>Bristol Bay Oil & Gas</i>	<i>300</i>						▲	—					
<i>Cook Inlet OCS</i>	<i>500</i>							▲	—				
<i>Upper Cook Inlet</i>	<i>300</i>	▲											
<i>Copper River Basin</i>	<i>200</i>			▲	—	—	—	—	—	—	—	—	—
<i>Aging O&G Workers</i>	<i>3,000</i>	▲											
<i>ANWR</i>	<i>750</i>											▲	—
<i>Kenai Gasification Proj.</i>	<i>2,000</i>				▲	—	—	—	—	—	—	—	—
<i>Pt. Thompson</i>	<i>1,000</i>					▲	—	—	—	—	—	—	—
<i>Cook Inlet CO2 EOR</i>	<i>300</i>				▲	—	—	—	—	—	—	—	—
<i>Pebble Construction</i>	<i>2,000</i>						▲	—	▲				
<i>Pebble Operations</i>	<i>1,000</i>								▲	—	—	—	—
<i>Kensington Mine</i>	<i>200</i>	▲											
<i>Rock Creek</i>	<i>100</i>	▲											
<i>Donlin Creek</i>	<i>1,500</i>			▲	—	—	—	—	—	—	—	—	—
<i>Chuitna Coal Const.</i>	<i>800</i>				▲	—	—	▲					
<i>Chuitna Coal Ops</i>	<i>350</i>							▲	—	—	—	—	—
<i>General Hard Rock</i>	<i>1,000</i>		▲	—	—	—	—	—	—	—	—	—	—
<i>Power Generation</i>	<i>500</i>			▲	—	—	—	—	—	—	—	—	—
<i>General Const.</i>	<i>1,000/Year</i>	▲											
<i>Renewable Energy</i>	<i>300</i>		▲	—	—	—	—	—	—	—	—	—	—
<i>Beluga Coal to Liquids</i>	<i>1,300</i>					▲	—	—	—	—	—	—	—
<i>ANS Offshore</i>	<i>750</i>	▲	—	—	—	—	—	—	—	—	—	—	—

All Project Estimated Jobs & timelines are based on published media accounts & company information. Updated 01/02/08

Projects Not Included In The Projection- An Abbreviated List

- 
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- 
- 
- Port of Anchorage
 - Healy Coal Mine expansion
 - Bristol Bay OCS
 - Knik Arm Bridge
 - Western Arctic Coal Project
 - Sable Creek Gemstone Mine
 - Nenana Basin
 - Future expansion of Red Dog Mine
 - TSAIA 4th Runway
 - Instate petrochemical projects resulting from ANS gas line
 - Mat-Su railroad spur
 - 20+ Alaska mine prospects currently under exploration and development work
 - Chukchi Sea OCS

The Competition For The Workforce- Influences Now And In The Future

- Continental and global competition for skilled oil, gas and mining workers
- Aging workforce
- Increasing demand for energy and minerals spurring more projects and more demand for skilled workers



Vision for Alberta's Oil Sands Development – Alaskan Delegation

by John McGinnis, Director Hydrocarbon Upgrading

September 20, 2007

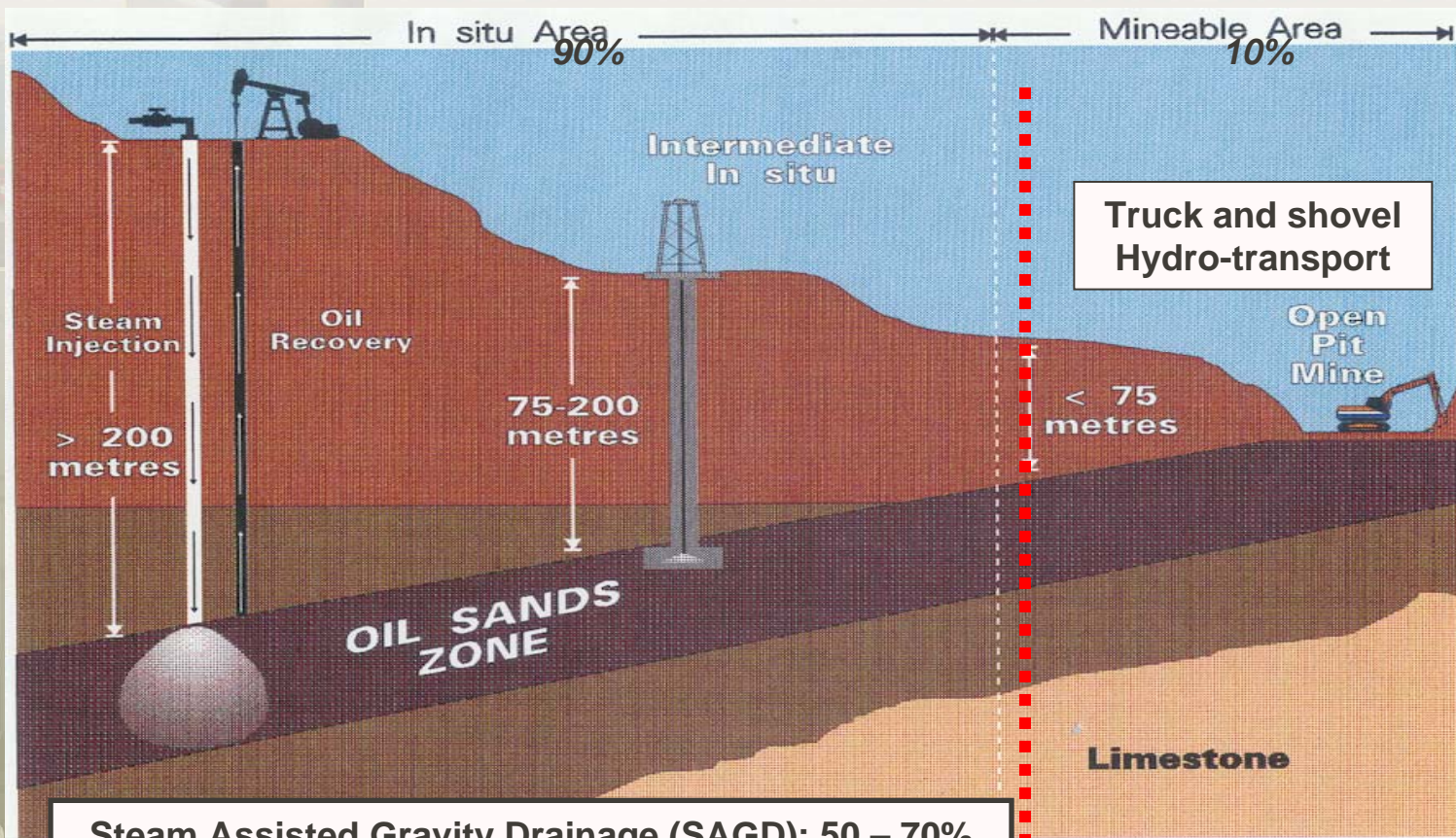




- 3.6 MBD bitumen output by 2020
 - 1 MBD upgraded to refined products
- 5 MBD bitumen output by 2030
 - 2 MBD upgraded to refined products
- Urgent to capture “window of opportunity” for exporting refined products

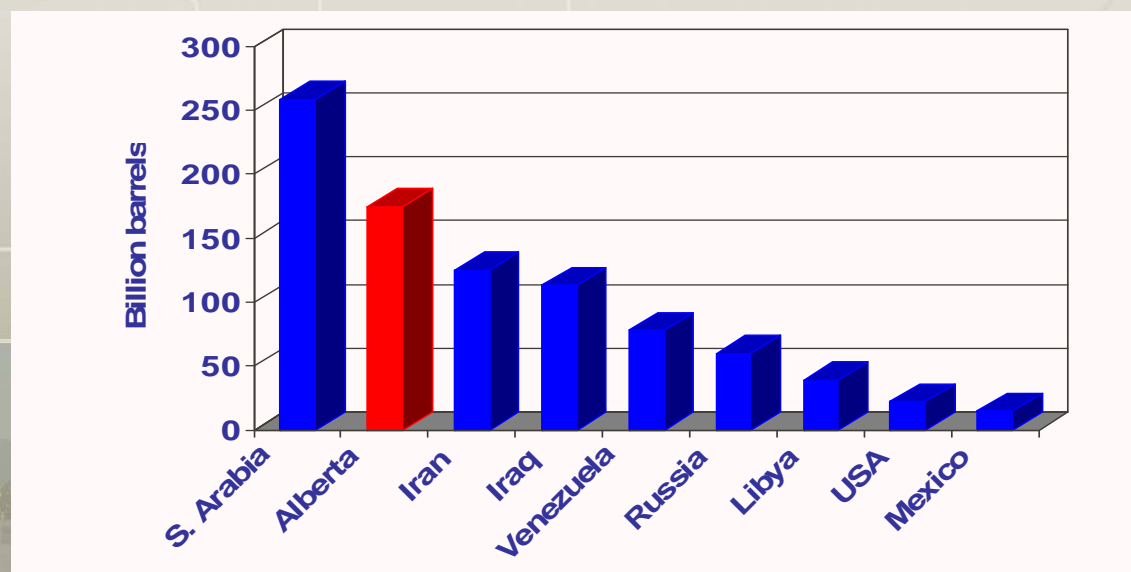


Oil Sands Recovery Techniques



Steam Assisted Gravity Drainage (SAGD): 50 – 70% Recovery
Cyclic Steam Stimulation (CSS): 20-25% Recovery

Ranked as the second largest established oil reserves, after Saudi Arabia.



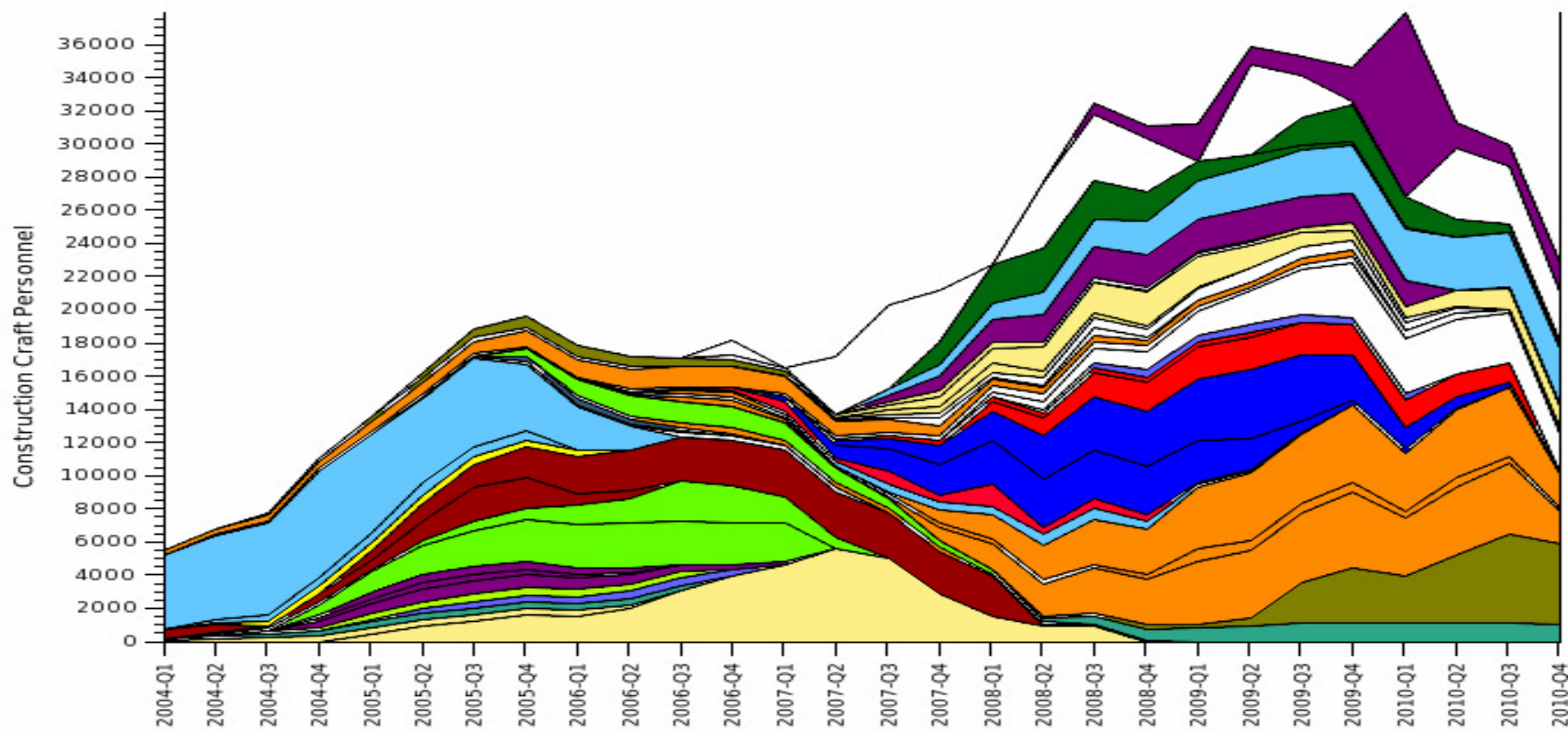
Source: Oil & Gas Journal

Alberta Economic Highlights

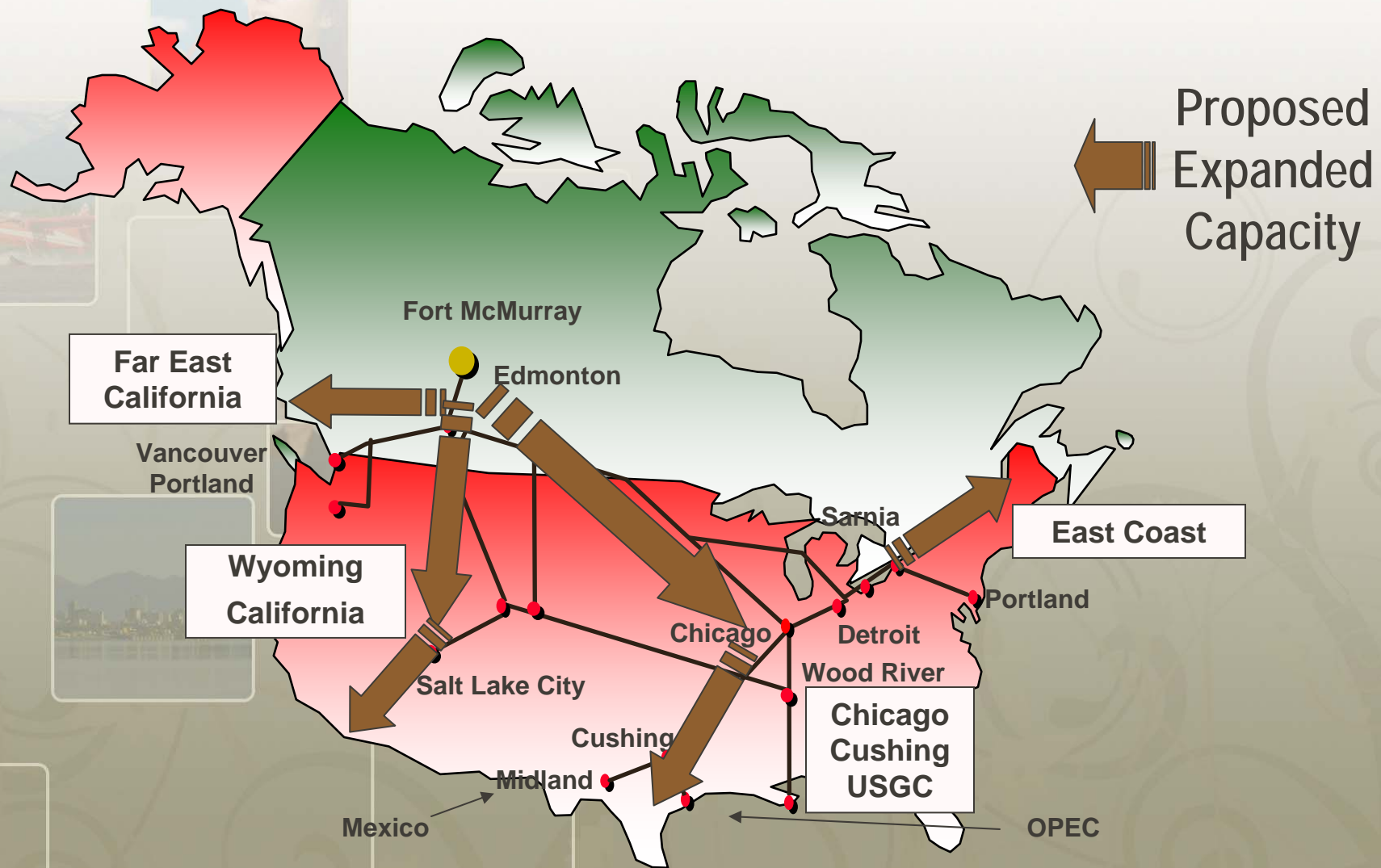
- Canada's fastest growing province:
 - Over the past 20 years, averaged 3.5% growth/year
 - In 2006, Alberta's GDP expanded 6.8% and population reached 3.3 million
- Alberta's total investment in 2005:
 - \$60.3 billion (2006 estimated at \$66 billion)
 - highest investment per capita in Canada



Industrial Construction Projects
 >100 MM Cdn (2004Q1 - 2010Q4)
 Generated 2006-10-06 16:44



Source: Construction Owners Association of Alberta





PARW



One Solution:



The PARW Coalition Project

- Coalition of Industry, Government, and Trainers
- 3rd party confidential aggregator of industry workforce future strategic planning and needs
- Alliance that provides quality information for planning and investment by government and training providers
- Merged with Alaska Process Industry Careers Consortium (APICC)

What Kind Of Workers PARW Says We'll Need

2004 - 2014

Putting Alaska's Resources to Work

PRIORITY OCCUPATIONS

A two step process was used to identify priority occupations for Alaska's oil, gas and mining industries.

- o First, the number of jobs, growth of the occupation, age of workers in the job and number of non resident workers for 2004-2014 was analyzed.
- o Second, industry provided first hand input regarding current difficulty in hiring for each occupation.

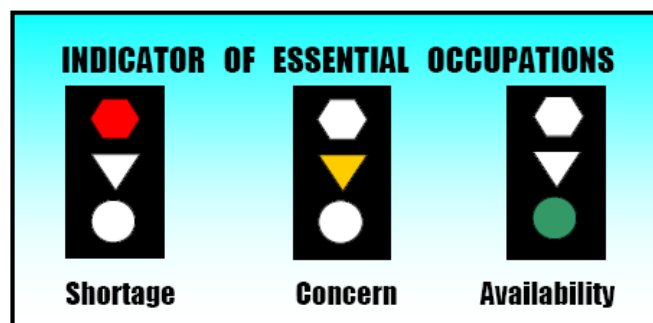
INDICATORS

The traffic light system helps identify the priority level of each occupation as follows:

Red/Shortage – Difficult to find qualified workers to hire in this occupation and positions often remain vacant for periods of time.

Yellow/Concern – Difficulty in finding qualified workers to hire in this occupation is increasing however most openings are filled in a timely manner. (Blue Font)

Green/Availability - Not difficult to find qualified workers in this occupation, however this occupation is essential to the oil, gas and mining industries.



KEY

For each occupation the following information is provided:

1. Definition
2. Level of training required
3. Range of wage or salary compensation

ALASKA'S OIL, GAS AND MINING PRIORITY OCCUPATIONS

ADMINISTRATIVE & PROFESSIONAL	FIELD INSPECTORS	MATERIAL HANDLING	OPERATIONS & MAINTENANCE
<p><u>Administrative Managers & Supervisors</u></p> <p>Accountants Administrative Aides Buyers/Procurement Clerks Contract Specialist Document Controllers Human Resources Information Technology Systems Internal Auditors Payroll Secretary</p>	<p>Non Destructive Examination</p> <p>Civil Coating Electrical Environmental Instrumentation Mechanical Telecom Welding</p>	<p>Warehousemen</p> <p>Expeditors Dispatchers Fork Lift Freight Handlers Fueling Handlers Material Inspectors</p>	<p><u>Carpenters</u> <u>Maintenance General (Mining Mechanic)</u> <u>Operations Managers & Supervisors</u> <u>Pipe Fitters</u> Drill Rig Operators Electricians Instrumentation Telecommunications</p> <p>Insulators Laborers/Nippers/Utilities Machinists & Millwrights Mechanics Painters Pipe Coaters Welders</p>
<p>CAMPS/CATERING</p> <p>Cooks Stewards Maintenance - Light</p>	<p>HEALTH & SAFETY (H&S)</p> <p><u>H & S Compliance Inspector</u></p> <p>Fire Fighters Industrial Hygienist Medical</p>	<p>OFFICE & FIELD ENGINEERS</p> <p><u>Project Managers</u> <u>Project Engineers</u> <u>Chemical Engineers</u> <u>Civil Engineers</u> <u>Electrical Engineers</u> <u>Mechanical Engineers</u> <u>Mining Engineers</u> <u>Geoscientist/Geologist</u> <u>Petroleum Engineers</u></p> <p>Chemist Designers Drafters Geographic Information Systems Specialist Lab Technicians Schedulers/Planners Surveyors</p>	<p>PLANT & PRODUCTION OPERATORS</p> <p>Mill Operators Control Room Operators Oil & Gas Operators Power Plant Operators</p>
<p>ENVIRONMENTAL</p> <p><u>Cleaners</u> Archaeologist Biologist Geotechnical Engineers Hydrologist Water or Air Specialist Water/Waste Water Operators</p>	<p>INDIRECT SERVICES</p> <p>Sales Teachers or Trainers Real Estate</p>		
<p>EQUIPMENT OPERATORS</p> <p><u>Heavy Truck Drivers</u> Drill Operator Mobile Equipment Operators Crane Operators</p>	<p>LOGISTICS</p> <p>Airplane Pilots Barge Operators Bus Drivers Deckhands/Stevedores Divers Flagmen Flight Attendants Helicopter Pilots Light Truck Drivers</p>		
<p><u>Bold Underlined</u> = Shortage</p>	<p>Bold = Concern</p>	<p>Plain Text = Available and Essential</p>	

The Priority Jobs

ADMINISTRATIVE & PROFESSIONAL

Administrative Managers & Supervisors

1. Sets goals, leads, organizes, supervises and coordinates individuals and activities for the efficient and effective operation of their various departments.
2. Bachelor's degree
3. \$50,000 + per year



SHORTAGE

ENVIRONMENTAL

Cleaners

1. Performs heavy cleaning, janitorial service and snow removal of buildings, equipment and containers and provides oil spill clean up.
2. High school diploma or GED and Confined Space Certification plus other certifications as required
3. \$16 - \$30 per hour



SHORTAGE

EQUIPMENT OPERATORS




Heavy Truck Drivers

1. Drives a tractor-trailer combination or a truck with a capacity of at least 26,000 GVW, to transport and deliver goods or materials in liquid, loose or packaged form. May be required to unload truck and use automated routing equipment.
2. Certified Drivers License with appropriate endorsements.
3. \$50,000 + per year












SHORTAGE







FIELD INSPECTORS

<p>Electrical Inspectors</p> <ol style="list-style-type: none"> 1. Inspects and tests electrical drawings, equipment and installation to meet regulatory code and contract specifications. 2. Associates or bachelor's degree in related field, experience may substitute for some to all of educational requirements. 3. \$60,000 - \$100,000 per year 	 SHORTAGE
<p>Mechanical Inspectors</p> <ol style="list-style-type: none"> 1. Inspects and tests mechanical systems, equipment and installation to meet regulatory code and contract specifications. 2. Associates or bachelor's degree in related field, experience may substitute for some to all of educational requirements 3. \$60,000 - \$100,000 per year 	 SHORTAGE
<p>Non Destructive Examination</p> <ol style="list-style-type: none"> 1. Inspects and tests assemblies and components for mechanical integrity through various non-destructive means. 2. Associates or bachelor's degree in related field, experience may substitute for some to all of educational requirements 3. \$60,000 - \$100,000 per year 	 SHORTAGE

HEALTH & SAFETY (H&S)

<p>H & S Compliance</p> <ol style="list-style-type: none"> 1. Provides enforcement of occupational safety and health regulations derived from an established body of law (e.g.: OSHA, MSHA). 2. Associates or bachelor's degree in related field, experience may substitute for some to all of educational requirements 3. \$60,000 - \$100,000 per year 	 SHORTAGE
<p>Safety Inspector</p> <ol style="list-style-type: none"> 1. Researches the identification, abatement, or elimination of pollutants or hazards that affect the environment or health and safety of the population. 2. Associates or bachelor's degree in Occupational Health and Safety 3. \$60,000 - \$100,000 per year 	 SHORTAGE

OFFICE & FIELD ENGINEERS	
<p>Chemical Engineers</p> <ol style="list-style-type: none"> 1. Plans, designs, supervises, monitors and adapts chemical processes to control and manipulate forms of matter and energy to produce a desired outcome. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Civil Engineers</p> <ol style="list-style-type: none"> 1. Plans, designs, and oversees construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, water and sewage systems, and waste disposal units. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Electrical Engineers</p> <ol style="list-style-type: none"> 1. Designs, develops, tests, or supervises the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Mechanical Engineers</p> <ol style="list-style-type: none"> 1. Plans and designs tools, engines, machines, and other mechanically functioning equipment. Oversees installation, operation, maintenance, and repair of such equipment as centralized heat, gas, water, and steam systems. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Mining Engineers</p> <ol style="list-style-type: none"> 1. Designs, supervises and adapts mining processes and procedures to maximize the value of the mine. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Project Engineers</p> <ol style="list-style-type: none"> 1. Using end use specifications designs systems and facilities, makes construction drawings, meets applicable codes and industry/owner specifications, creates change orders as required and coordinates construction for compliance with drawings, schedules and timelines and costs. 2. Bachelor's degree 3. \$70,000 + per year 	 SHORTAGE
<p>Project Managers</p> <ol style="list-style-type: none"> 1. Manages all aspects of a project or construction to ensure that goals, timelines, costs and quality standards are achieved or exceeded. 2. Bachelor's degree in related field and additional certification, experience and or project training 3. \$70,000 + per year 	 SHORTAGE

OPERATIONS & MAINTENANCE	
<p>Carpenters</p> <ol style="list-style-type: none"> 1. Constructs and repairs mostly wooden structures. Builds forms for concrete work. 2. Apprenticeship or other vocational skills training plus on the job training 3. \$50,000 + per year 	 SHORTAGE
<p>Electricians</p> <ol style="list-style-type: none"> 1. Provides preventive maintenance, repair and calibration of protective relays, low and medium voltage switch gear, lighting and control systems, power distribution systems; including batteries, chargers, UPS systems and generator sets up to 4 MW and heat trace systems. 2. Apprenticeship or other vocational skills training plus on the job training 3. \$70,000 + per year 	 SHORTAGE
<p>Machinist & Millwrights</p> <ol style="list-style-type: none"> 1. Installs, aligns, maintains, makes and/or repairs parts and repairs mechanical systems including motors, generators, pumps, compressors, turbines, crushers, grinders and conveyors. 2. Associates or apprenticeship or other vocational skills training plus on the job training 3. \$70,000 + per year 	 SHORTAGE
<p>Maintenance General (Mining Mechanic)</p> <ol style="list-style-type: none"> 1. Conducts preventive maintenance and repair of plant facilities and equipment. 2. Associates or apprenticeship or other vocational skills training plus on the job training 3. \$40,000 + per year 	 SHORTAGE
<p>Operations Managers & Supervisors</p> <ol style="list-style-type: none"> 1. Sets goals, leads, supervises and coordinates individuals and activities to ensure the plant and facilities operations meet or exceed business goals. 2. Associates or bachelor's and experience in related field 3. \$50,000 + per year 	 SHORTAGE
<p>Pipe Fitters/Plumbers</p> <ol style="list-style-type: none"> 1. Constructs and maintains piping systems for both pressure and atmospheric service in accordance with applicable codes. 2. Experienced and qualified welder with appropriate mathematical background. 3. \$70,000 + per year 	 SHORTAGE



The Next Step: Join PARW!

- Industry needs to become even more involved
- PARW offers an excellent model for confidential aggregation of key company workforce projections
- Industry must lead the workforce needs discussion and PARW provides the platform to lead from

Who To Contact?

Molly Merrit-Duren
Executive Director
APICC

770-5250

www.apicc.org

www.PARW.info





"IT'S PRIME TIME!" PARW 3 Conference

WHO: The "Putting Alaska's Resources to Work" (PARW) Coalition invite Oil, Gas, Mining, Construction and Transportation industry members, educators, trainers and government representatives interested in working with the PARW initiative.

WHAT: The third PARW Conference - *"It's Prime Time!"*

WHERE: BP Energy Center in Anchorage Alaska

WHEN: Monday, March 3rd, 2008, from 8:30 am to 4:00 pm

WHY: To ensure Alaska will have a highly skilled and globally competitive workforce that meets the current and future needs of these natural resource industries.

www.parw.info To Register



Thank You!



Bill Popp
President & CEO

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www.aedcweb.com