



engineering and construction contracting association



Stealing Industry Genius:

US Construction Labor Shortages- Past, Present, and Future

Moderator: Future Leaders

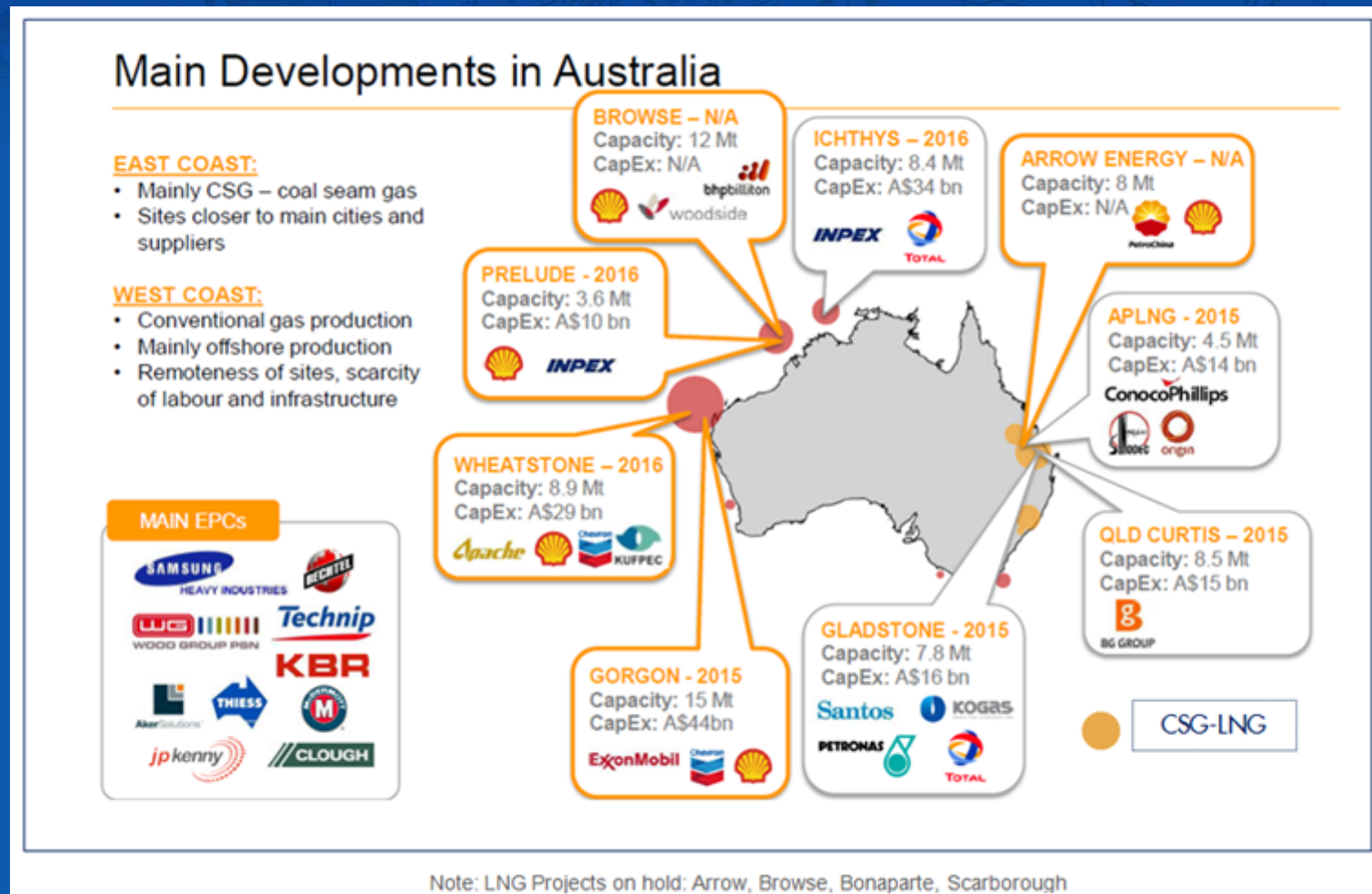
Panelists: Jeff Davis, Brock Group

Art Richard, Richard Industrial Group

Randy Walker, S & B

Australia LNG Boom

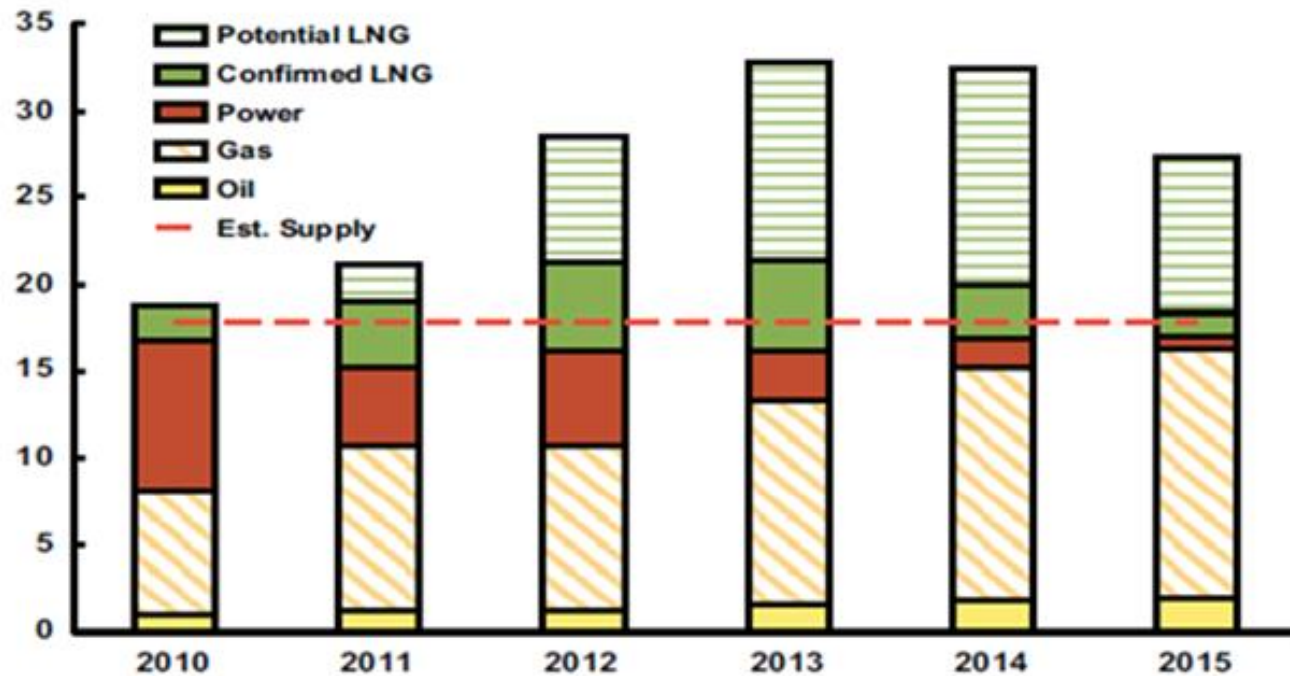
In the last decade, labor costs in Australia have risen 37%. *source: OECD*



Source: Accenture Australia

Australia LNG Boom

Skilled construction worker demand & supply in Australian LNG (job hrs)



Source: IHS CERA.
10315-2

Australia LNG Boom

“If we can’t keep the prices down and we can’t find a way to improve the productivity, onshore LNG plants will become increasingly difficult to build” Ann Pickard (Shell)

Source: WSI, 26 July 2012



“While the industry, partners and governments have together delivered more than \$160 Billion in committed LNG investment in Australia, another \$100 Billion-plus in projects hangs in the balance” Roy Krzywosinski (Chevron)

Source: The Australian Financial Review, 27 May 2013

ARS:

Do you predict there will be a significant craft labor shortage in the US within the next 3 years?

1. Yes



2. No



3. I don't know



ARS:

What craft labor discipline is going to experience the most significant shortage in the next 3 years?

1. Pipefitters



2. Welders



3. Instrument Technicians



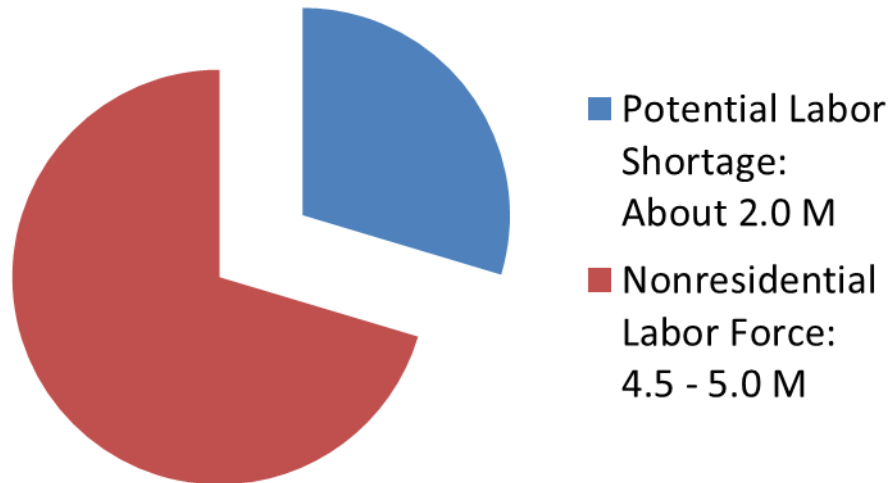
4. None of the above



Labor Shortage Prediction

\$542 Billion of US industrial construction in the next 5 years

U.S. Peak Labor Demand 2013-2017
6.8 million or More Skilled Workers



“Deficit of at least 2 million tradesmen will quickly emerge”

Source: CLMA Spring 2013 Report



Competing Mega Projects U.S. Gulf Coast – 5 Year Outlook

20,000 Craft Needed

Client	Project
1 Cheniere Energy Inc.	Sabine Pass LNG Terminal
2 Cheniere Energy Inc.	Corpus Christi LNG Terminal
3 Chevron Phillips Chemical Co. LLC	Baytown Cedar Bayou Ethylene Cracker Addition
4 Dow Chemical Company	Freeport Ethylene Cracker
5 Formosa Plastics Corp. U.S.A.	Point Comfort Plastics Plant Olefins 3 Unit Addition
6 Freeport LNG Development LP	Quintana Freeport I LNG Terminal
7 Marathon Petroleum Company	Garyville Heavy Oil Hydrocracker Unit Addition
8 Occidental Chemical Corp.	Gregory Ingleside Ethylene Unit Addition
9 Sasol Limited	Westlake Grassroot Gas-to-Liquids Plant
10 Sasol Limited	Westlake Chemical Complex Ethylene Unit Addition
11 Sempra LNG	Cameron Grassroot LNG Liquefaction Plant
12 ZEEP Limited	Beaumont Coal Gasification Plant Addition
13 Ineos	Ethylene Oxide Project
14 ExxonMobil	Ethylene Cracker Addition
15 Dow Chemical Company	PDH Unit Project
16 Shell	GTL Facility

Total planned expenditures: \$55B

Source: FLUOR



ARS:

What percentage of new craft demand do you believe is attributable to retirement?

1. <25%



2. 25-50%



3. >50%

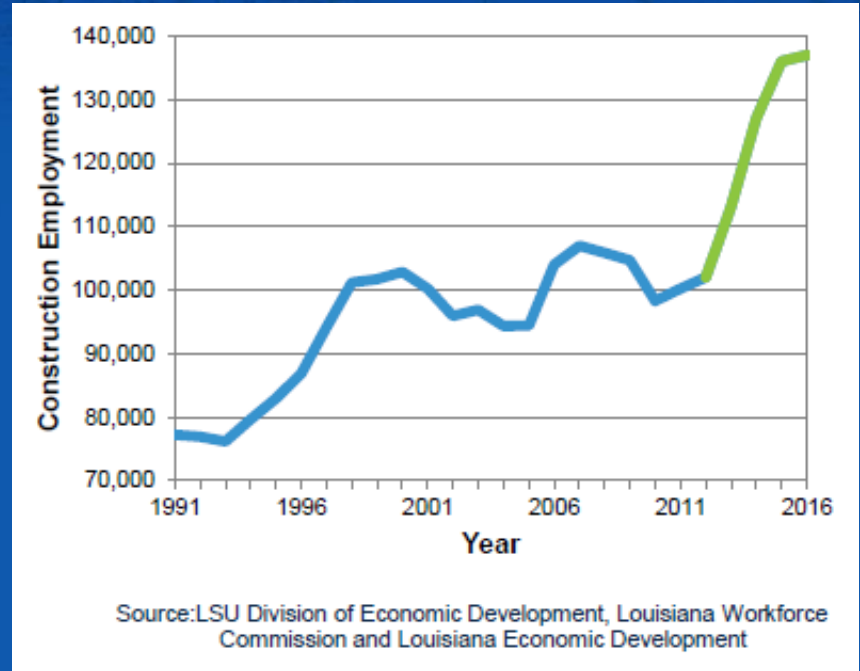


4. I don't know



Retiring Workforce- Louisiana Prediction

- Estimated \$60 Billion of new plants and expansions
- Estimated 86,300 new craft workers needed through 2016
 - 59% due to attrition



Source: Louisiana Workforce Commission



Simplify installation

Reduce field hours:

- Modularize
- Use standard components
- Minimize welds
- Maximize packaged equipment



Hire a different Demographic



Change benefits offered

- Worker welfare
- Health insurance
- Duration bonus
- Family housing
- Part-time crew



Panelists

- Jeff Davis, CEO, Brock Group
- Art Richard, CEO, Richard Industrial Group
- Randy Walker, VP, S & B



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