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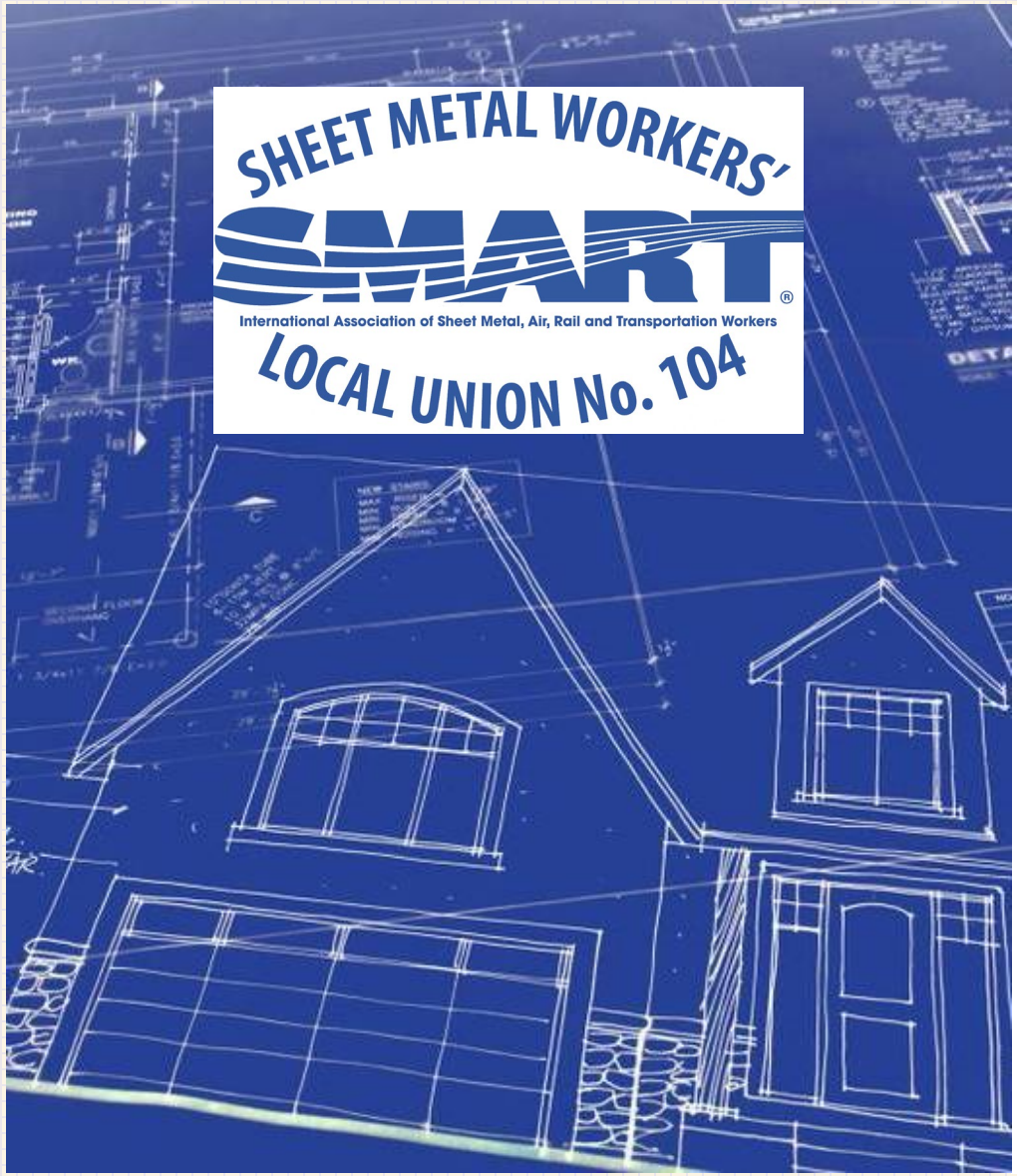

Current and Future Workforce and Training Ecosystems

Integrated Energy Policy Report (IEPR) Building Decarbonization Workshop

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California Energy Commission’s Mandate

Senate Bill 1389 (SB 1389, Bowen and Sher, Chapter 568, Statutes of 2002) requires the California Energy Commission to:

"[C]onduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety." (Pub. Res. Code § 25301(a)).

California has enacted a suite of policies building toward achieving an electricity system that is 100 percent zero carbon by 2045, and, more broadly, a statewide goal of carbon neutrality by 2045.

Workforce Training And Development

- Building decarbonization will involve a shift from fossil fuel technologies to efficient electric solutions, and a shift in the workforce that installs and maintains those technologies.
- This shift will require the existing workforce to learn new technologies and continually adapt their training as the technology continues to advance. The workforce needed to support this must be well-versed in new electric technologies and adapting systems and technological advancements that will continue to engross the market in the years to come.
- Requirements for all-electric new construction will also create immediate significant job losses for construction workers who currently make a living installing gas piping and appliances in buildings. Actions with such significant job loss impacts must be coordinated with concurrent steps to ensure these job losses will be minimized or mitigated

Workforce Training And Development

Decarbonization efforts must be paired with concurrent steps to create high-quality energy and water efficiency work to replace lost jobs for existing workers and to create new, high-quality jobs and career paths.

- Just transition requires providing a glide path for workers directly affected by these changes. Creating new, low-wage jobs for new workers does not mitigate the loss of good, paying careers for established workers.
- The elimination of building gas piping work should be addressed through the concurrent creation of replacement work for those construction workers most directly impacted (e.g. through the concurrent adoption of indoor water re-use requirements to address drought impacts from climate change).
- The gas utility workforce requires a clear plan and a reasonable timeline to allow for (1) retention; (2) retirement; and (3) retraining.

Workforce Training And Development

High quality green jobs must include requirements to ensure: (1) performance; (2) safety; (3) good career jobs; and (4) workforce training.

- The energy savings lost due to the use of untrained workers is a significant barrier to achieving greenhouse gas reduction goals. A study by the University of California, Berkeley found that the lack of standardized workforce training requirements results in poor quality construction and substandard energy efficiency performance. Utility energy efficiency studies have found that less than half of construction workers installing residential HVAC equipment have been trained in industry standards, leading to “high failure rates for job performance on routine tasks.”
- The use of an undertrained workforce is also a safety issue. Poor quality construction can result in fire, electrocution, gas leaks, water leaks, mold, sewage leaks or other health and sanitation concerns.

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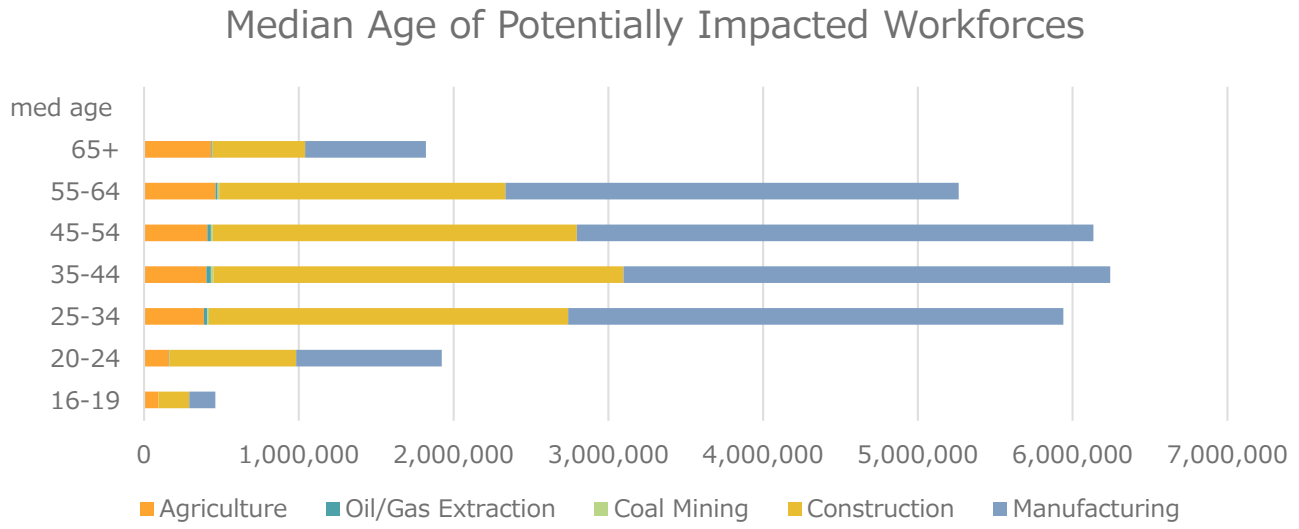
Current Workforce as per 2020 Bureau of Labor Statistics Study



Occupation	Total	16-19	20-24	25-34	35-44	45-54	55-64	65+	med age
Agriculture	2,249,000	93,000	161,000	386,000	403,000	409,000	462,000	435,000	**42.5**
Oil/Gas Extraction	97,000	0	3,000	23,000	29,000	23,000	13,000	7,000	**43.3**
Coal Mining	51,000	0	2,000	10,000	16,000	12,000	10,000	1,000	**44.1**
Construction	10,786,000	199,000	817,000	2,321,000	2,650,000	2,352,000	1,850,000	598,000	**42.9**
Manufacturing	14,550,000	169,000	940,000	3,200,000	3,145,000	3,338,000	2,929,000	780,000	**44.4**

"We find almost half of families of construction workers in California are enrolled in a safety net program at an annual cost of over $3 billion. By comparison, just over a third of all California workers have a family member enrolled in one or more safety net program."

SOCIAL EQUITY IN BUILDING DECARBONIZATION

Table 1. Annual Enrollment in Safety Net Programs for Working Families, CA, 2015-2019

Program	Number of Construction Working Families Enrolled	Share of Construction Working Families Enrolled	Share of ALL Working Families Enrolled
Adult Medicaid	200,000	31%	24%
Children's Medicaid/CHIP	140,000	21%	13%
EITC	220,000	32%	21%
TANF	20,000	3%	2%
SNAP	120,000	18%	12%
Any program	**330,000**	**48%**	**36%**

Source: Authors' calculations based on the 2015-2019 American Community Survey, 2016–2020 March Current Population Survey, 2019 Occupational Employment Statistics, and administrative data from Medicaid, CHIP, EITC, SNAP, and TANF programs.

Note: The analysis is restricted to workers who work at least 27 weeks in a year and 10 or more hours per week.

Table 2. Annual State and Federal Spending on Safety Net Programs for Working Families, CA, 2015-2019 (2019 dollars)

Program	Amount Spent on Construction Working Families	Amount spent on ALL Working Families
Adult Medicaid	1,580,000,000	19,890,000,000
Children's Medicaid/CHIP	830,000,000	7,130,000,000
EITC	570,000,000	6,540,000,000
TANF	60,000,000	900,000,000
SNAP	310,000,000	3,810,000,000
All Programs	**3,350,000,000**	**38,250,000,000**

Source: Authors' calculations based on the 2015-2019 American Community Survey, 2016–2020 March Current Population Survey, 2019 Occupational Employment Statistics, and administrative data from Medicaid, CHIP, EITC, SNAP, and TANF programs.

Note: The analysis is restricted to construction workers who work at least 27 weeks in a year and 10 or more hours per week.

Concerns

Availability of a Qualified Workforce

- A qualified workforce will need to be available in urban areas and in rural communities, and especially in disadvantaged, hard-to-reach, and otherwise underserved parts of California.

Retraining Members from Displaced / Disrupted Workforces

- The median age of the California construction worker is nearly 43 years of age.
- Other industries likely to be impacted by decarbonization have a similarly-aged workforce.
- Just transition must happen concurrently, not years after workers lose their jobs.

Attracting Younger Workers to the Industry

- The new green economy needs to create good paying, career jobs with transferrable skills.

Policy Solutions to Ameliorate these Concerns

- Responsible contractor standards are key to achieving workforce training and development goals. Workforce Training and Development cannot be achieved when the market incentivizes project cost over project quality. Contractors will not invest in training and support for disadvantaged worker outreach programs if it will pose a barrier to winning bids.
- Develop a program-level standard that pre-qualifies installers, especially during early adoption periods to establish a quality standard that consumers can expect and to incentivize workforce development by manufacturers, installation companies, and partners.
- As technologies continue to evolve rapidly, manufacturers must be able to feed the latest installation information into established training programs.
- Establish targets or goals to ensure employment of low-income or difficult-to-employ workers in well-paid (living wage or other threshold) position.
- Establish concurrent, equitable just transition plans to address job losses for existing workers.

Policy Solutions to Ameliorate these Concerns

- Workforce training and development goals can be effectively achieved through the support of apprentice programs.
- Apprenticeship Programs ensure workers hired by contractors have the skills necessary to construct buildings correctly and safely. Apprenticeship Program training curricula include specific training on safety and on energy and water efficiency measures. This training is independently reviewed and approved by the California Division of Apprenticeship Standards.
- Apprenticeship Programs result in good paying, career jobs with transferrable skills.
- Policies that increase the demand for apprentices and apprentice graduates support workforce development and career opportunities for disadvantaged workers.