Green Workforce: Salt Lake City

"Listening Tour" *Readout*

Sponsors: Salt Lake City Sustainability Team and FUSE

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Document Context, Content, and Purpose

In November 2023, I started a one-year executive fellowship focused on green workforce development in the Salt Lake City area. The project's first phase (three months) is a listening tour: a chance to meet with stakeholders, experts, community and government leaders, and other interested parties, to gather insights and suggestions, as well as provide a foundation for the upcoming analysis and recommendations phases.

This report is an interim readout, summarizing my impressions and the broader context in which SLC can consider green workforce development efforts. It includes the following sections:

In addition to summing the themes that most stand out to me after the listening tour, I hope this report serves as a helpful starting point and reference for those in our community thinking about workforce development needs.

Preface: Defining Green Jobs

Throughout, I use "green jobs" to mean both jobs tied directly to clean energy or related outcomes, as well as traditional trades or services that, among other things, enable or support green outcomes (see examples in table below). Ultimately, in the context of green workforce development, it's green skills and knowledge that we care most about, not specific industries (e.g., HVAC installers with heat pump certifications, or electricians certified on EV charging stations or building electrification) (1)

Examples of Green Jobs Types, for illustration

Core Green Jobs	Green Enabled Jobs (skills)	Green Enabling Jobs (services)	Potential Green Jobs
Solar + Hydro Engineers, Green tech and installers (solar, wind, etc.), and Energy Efficiency Specialists	High efficiency HVAC installers, Electricians, Mechanics with electric vehicle skillsets	Marketing managers, accountants, IT managers, and related professional services who support green outcomes	Maintenance and engineers in new technologies

TL;DR

The national shift towards sustainable energy and infrastructure may appear incremental, a set of independent gradual steps. However, with new, ambitious city, state, and federal plans, along with "generational" federal funding and growing market momentum for clean energy, the green transition represents a profound restructuring of our energy landscape, potentially creating millions of new green jobs. Yet, significant challenges loom, as a sizable portion of the workforce in critical jobs is approaching retirement age, at the same time new entrants into these same industries are slowing. These trends will lead to critical shortages if unaddressed. Regional workforce development ecosystems offer a solution, aligning industry needs with training programs to foster economic growth and readiness to deliver on climate and clean energy plans.

In Utah and Salt Lake City specifically, green jobs growth, though slightly below national averages, is robust. Salt Lake County houses nearly half of the state's clean energy jobs, predominantly in energy efficiency jobs. We lack a detailed study and forecast of job gaps for our region, but anecdotal evidence indicates growing workforce challenges, particularly in a few key skilled trades and certification-level jobs. And while the region boasts several advantages, including a strong educational system, workforce diversity is severely lacking, and coordination between stakeholders is lacking or absent.

As Salt Lake City looks forward, it can learn from many of its neighbors, who have already launched a variety of programs. There are several valuable roles Salt Lake City might play if it wishes to help promote a robust regional green workforce ecosystem—and to help historically disadvantaged and at-risk community members find good jobs in these fast-growing green industries.

Green Jobs National Trends: What's happening, and should we care?

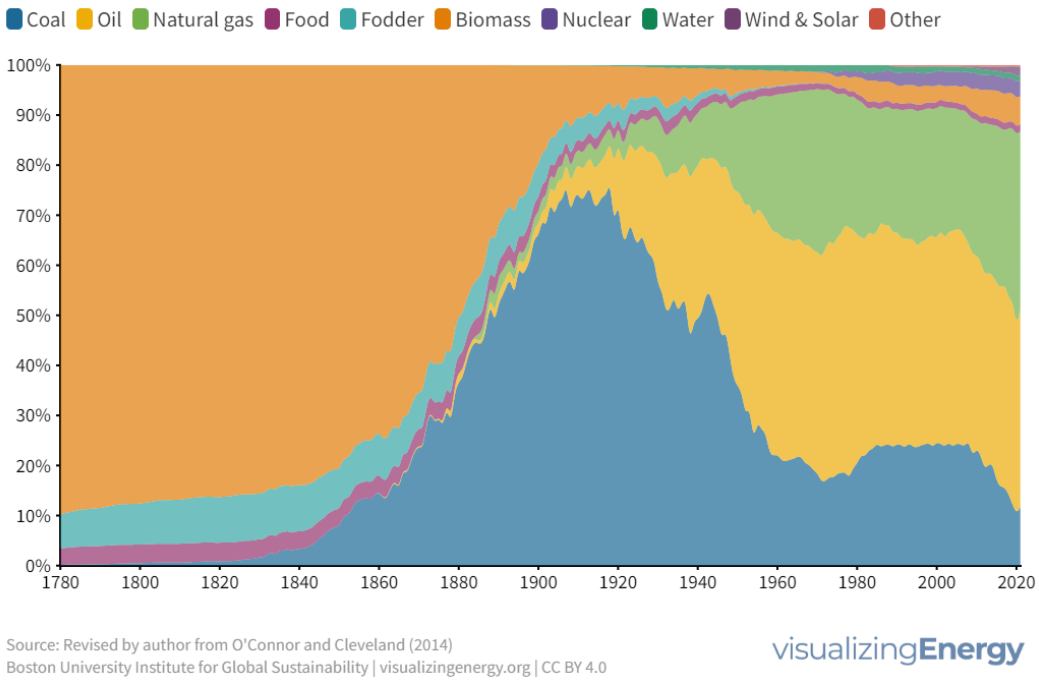
An economic transformation

It's tempting to think of the current national transition to sustainable cleaner energy sources and more efficient energy infrastructure as a set of ongoing, small, incremental changes—a series of new, independent projects and policies. But if we consider the full scope of energy, infrastructure, and climate action plans laid out for the coming decade, alongside the accelerating market trends and energy advancements making "green" energy more attractive every year, the sum of the work is not a continuation of the trends of the past two decades, or even a slight acceleration. Instead, the sum of these aspirations represents a profound, comprehensive overhaul of our energy infrastructure. [1]

As with previous major energy transitions in the US—biomass to coal in the late 1800s, oil and gas in the mid-1900s (2) (see graphic below, from visualizingenergy.org)—the transition to sustainable, clean energy, if successful, won't happen without another equally dramatic shift in our infrastructure and energy workforce: the advent of a skilled "green workforce."

United States Energy Transitions, 1780 – 2021

If successful, the transition ahead to clean energy sources may represent a bigger shift economically than the previous transitions to coal and to oil and gas.



John Podesta, White House senior climate adviser, sums up this green energy transition ahead as "an [economic] transformation on a size and scale that's never occurred in human history."

How big will this green workforce need to be? Mark Paul, an environmental economist at Rutgers University, estimates that this transition "is going to generate upwards of 25 million new jobs [in the US]

[1] *For example, the Infrastructure Investment and Jobs Act (IIJA) alone outlines approximately 400 new programs, with 72 explicitly emphasizing or allowing for workforce development, totaling approximately $490 billion.*

in the next 15 years." And it's already happening. Already, jobs in solar and wind comprise "two of the five fastest growing occupations in America" (3)

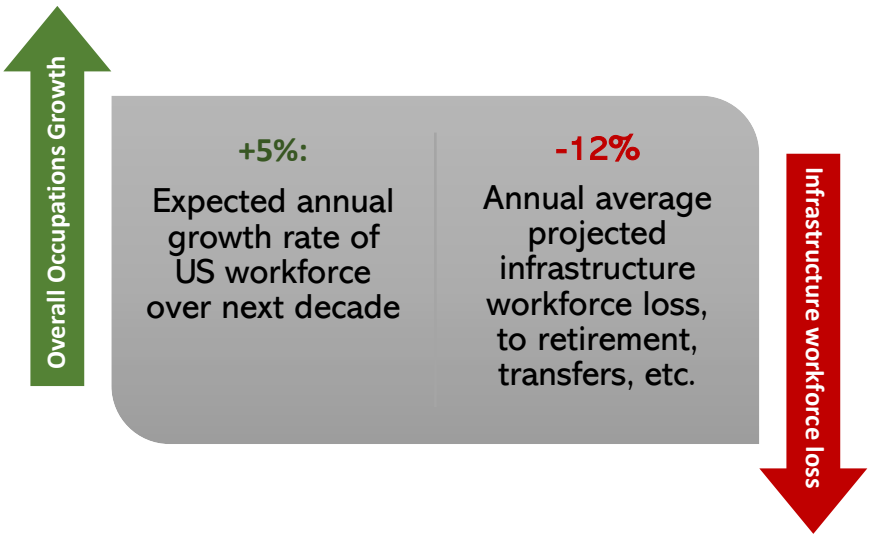
> *"Even as cities, states, departments, and utilities scramble to plan for billions in new funding and deliver on ambitious climate action plans, they often cannot even hold onto current infrastructure workers, let alone find more of them to carry out this pressing work."*
>
> Joseph Kane, Brookings Institute:

Adding to the good news on the green economy, studies from the World Resources Institute and C40 Cities show that dollar for dollar, clean energy investments create more than 30% more jobs than traditional infrastructure and energy investments, while also reducing air pollution and delivering $280 billion in health-related economic benefits to our major cities. (4)

The challenges ahead

In sum, the scope of the work ahead represents a fundamental restructuring of industries and job markets to align with sustainable practices and principles. Building the workforce needed to execute on that vision will, likewise, require fundamental changes in our energy and infrastructure workforce ecosystems. While it's easy to focus on the unprecedented levels of funding and the growth ahead, we face a difficult, current reality: as the Brooking Institute point it in its review of the current US infrastructure workforce, "Even as cities, states, departments, and utilities scramble to plan for billions in new funding and deliver on ambitious climate action plans, they often cannot even hold onto current infrastructure workers, let alone find more of them to carry out this pressing work." (5)

Let's breakdown the scale of the workforce challenge ahead, starting with the macro trends at the core of the Brookings analysis. First, our existing infrastructure and construction workforces primarily consist of older, white males who are set to retire or otherwise change job tracks at a pace that more than doubles the average workforce growth projections over the next decade:



If these trends hold without change, we'll face significant workforce gaps and changing demographics in the affected fields. And it's not just infrastructure: a similar trend holds in skilled labor roles tied to home

services and construction—often called the "trades gap." Analysts in the construction industry in 2022 projected a labor gap in the US of approximately 500,000 for 2023, and the gap is expected to grow, exacerbated by declining recruiting and workforce development pathways. (6) For example, one prominent recruiting platform reported that the application rate for young people seeking jobs in skilled trades like plumbing, construction, and electrician dropped by nearly 50% since 2020. (7)

The US Chamber of Commerce sums the current state as "a massive shortage of skilled workers." (8)

The challenges above are primarily tied to our current state. However, it's worth repeating here that we don't expect the current state to continue. *We expect the need for a skilled workforce to increase—dramatically*—in the coming decade.[2] In its recent global green workforce skills analysis, LinkedIn summed the challenge ahead: "analysis shows exciting progress in some areas, but we are still dangerously far from the scale of change [in our workforce] that's required." (9)

Finding the High Road

There's another challenge ahead for communities interested in policy and programs that foster not just green jobs, but *high road* green jobs (that is, jobs that provide good wages, working conditions, and benefits). Despite clean energy workers earning 25% more than the national average in 2020, their wages still lag behind those in the fossil fuel industry in the United States. Why? Decades of hard-fought union representation in the fossil fuel sector have boosted wages there, while the much-newer green economy often lacks the benefits and protections associated with unionized labor. As a result, workers in the emerging green job sectors find themselves with reduced leverage to advocate for improved wages and working conditions. (10)

Given this context, as the green economy grows, there's risk that energy cost reductions and advancements in sustainable energy and efficiencies may come at a cost of lower wages, job security, and overall working conditions for those employed in the energy sector. Balancing the need for sustainable innovation with equitable labor practices remains a critical challenge in shaping the future of green workforce development.

Workforce Diversity

Given the workforce trends and challenges ahead, a status quo approach to workforce development—that is, one that relies primarily on existing workforce demographics—simply won't be sufficient. As a starting point, our existing workforce, as noted above, consists primarily of older white males: only 11% are under 24 years of age, just are 19% are women, and about 30% are people of color. And in some industries, the data skews even more heavily. For example, Yale Climate Connections notes that women make up only 2% of our nation's electrician workforce, a critical role for the sustainable energy transition. (11)

[2] *What does this growth look like? To highlight one industry of many: For example, the Solar Energy Industries Association (SEIA) projects the US solar workforce will need to more than double in the next decade.* (21) *The forecast holds for Utah as well: the Utah Department of Workforce Services projects our solar installer workforce will need to double by 2030.*

Addressing our forecasted workforce gaps will require a substantially more diverse workforce in every dimension, including age, race, and gender. Achieving this diversity will require sustained, careful efforts in the years ahead, especially given perceived opportunities, awareness, and enthusiasm will be systemically lower in groups that have not traditionally been a part of these workforces.

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Workforce Ecosystems

As we think about the right responses to the challenges and opportunities ahead, it's helpful to think about policy and programmatic responses as collectively contributing to workforce development ecosystems (as opposed to a set of independent or hyperlocal efforts).

In brief, regional workforce development ecosystems play a crucial role in aligning the needs of local industries with the skills and expertise of the workforce (actual and potential). These ecosystems serve as collaborative frameworks, involving various stakeholders, including employers, educational institutions, government agencies, and community organizations. Their primary objective is to foster economic growth and competitiveness by ensuring that the workforce is adequately prepared to meet the demands of evolving industries and emerging sectors within a specific geographic region.

Successful regional workforce development ecosystems entail strategic coordination and collaboration among multiple stakeholders. For example, when potential employers are engaged directly, a given ecosystem can identify current and future skill requirements, labor market trends, and job opportunities. This information is then used to inform educational and training programs offered by local institutions, ensuring that programs are tailored to meet market needs—including, critically, keep labor supply and demand balanced—by creating pathways that attract and equip individuals with relevant, in-demand skills.

Given its role in shaping and building workforces, regional workforce development ecosystems typically include a broad mix of inputs (see example breakdown below): (12)

Community + Institutions	Gov't	Collaborative Entities	Industry
•Faith-based orgs •Community orgs •Foundations + Philanthropies •Community Colleges •High school CTE •Universities	•Workforce Development Boards •Job Centers •Services Agencies •Econ Dev agencies •Gov't Programs	•Industry Partnerships •Stakeholder Associations •Funder Alliances	•Biz and Pro Associations •Employers •Unions •Training •pro development

Additionally, regional workforces play a critical role in fostering inclusivity and equity, building awareness and accessible pathways to employment for individuals from diverse backgrounds and underserved communities (a feature critical to meeting the projected green workforce skill gaps). Through tactics like targeted outreach efforts, apprenticeship programs, and support services (career counseling, job placement assistance, etc.), regional workforce can reduce disparities in employment outcomes and promote economic mobility for all residents and catalyze economic development, innovation, and social progress, driving prosperity and vitality within their respective communities.

Let's look at two notable industry examples, one born in the oil and gas industry, and one in the sustainable energy industry:

UpSkill Houston

*Founded in 2014**, UpSkill Houston** "mobilizes the collective action of more than 200 critical stakeholders to strengthen the pipeline of skilled workers."*

It features several councils across regional industries, most notably a "highly active employer-led petrochemical sector council," which has significantly increased enrollment in community colleges petrochemical courses, as well as raised completion for both degree and technical programs.

Overall, the program aims to encourage "different groups addressing the same problem to establish a common goal, align their efforts, pursue separate tactics, and share results." It focuses primarily on opportunities that require education beyond high school, but less than a four-year degree, offering "resources, structure, and convening opportunities…, as well as training and service providers (community-based organizations and government agencies)."

LACI

***LA Cleantech Innovators (LACI**), started in 2011, "has embraced a central role in the Los Angeles cleantech ecosystem" Specifically, it uses its accelerator fund to work with 35 – 50 companies annually, with ~$700M invested so far, to "unlock innovation through startups, transforming markets with partnerships and enhancing community inside our campus and out in our neighborhoods.:"*

Its founding partners include the City of Los Angeles and the Los Angeles Department of Water and Power. It also counts the California Workforce Development Board among its institutional partners.

One of LACI's strategic pillars is its Green Jobs Workforce Programs, which provides "technical training, industry-recognized certifications, career coaching, case management, and job retention services to help underrepresented groups succeed in the green economy."

Directional Workforce Breakdown and Gap Analysis

National Context

Between 2020 – 2022, according to the e2 organization's annual reporting, the fastest growing subsectors of the clean energy industry were as follows (the total number of workers per subsector is also noted in the second column). (13)

National Clean Energy Jobs Growth Rates and Worker Totals: '20 – '22		
Clean Energy Subindustries	**Employment Growth Rate ('20 – '22)**	**Number of Workers (as of August, '22)**
Hydrogen And Fuel-Cell Vehicles	77%	18k
Electric Vehicles	60.1%	134k
Plug-In Hybrids	44.1%	69k
Hybrid Electric Vehicles	27.8%	153k
Natural Gas Fuels	25.2%	19k
Grid Modernization	14.3%	21k
Storage	10%	86k
Wind	9.4%	126k
Solar	9.3%	346k
Other Biofuels	9.3%	19k

Zooming in on Utah

Shifting our focus more locally, we see that Utah ranked tenth in the nation in 2022 in terms of the percentage of its existing workforce in green jobs, with 2.7% of its overall workforce in clean energy jobs (equating to just over 43k jobs in total). However, note that roughly 70% of these Utah-based green jobs are tied to manufacturing of Energy Star appliances. (14)

Additionally, according to the 2023 US Clean Energy Report, Utah's total clean energy sector grew 3.1% in 2022 and 4.7% in 2021 (compared to national clean energy jobs growth rates of 4% in '22 of 5% in '21). In other words, Utah's clean energy sector has grown well in recent years, but at a pace slightly slower than the national average for this sector.

That growth rate has led to the following in terms of clean energy subsector size in Utah, as of end of 2022 (rounded to the nearest hundred).

Utah Clean Energy Jobs: 2022	
Industry Subsector	**Total**
Construction (including Energy Star appliances manufacturing, high efficiency HVAC, green services)	29,100*
HVAC (High Efficiency and Renewables)	7,400
Solar	7,300
Clean Vehicles and Biofuels	3,300
Grid (storage, modernization, smart)	1,200
Wind	700
Geothermal, Bioenergy, and Hydro	500

* NOTE: Categories are NOT mutually exclusive

While solar jobs are ranked third in this report, this subsector deserves specific attention, given its rapid growth. The Utah Department of Workforce Services notes that solar installer is the fastest growing job in the construction and extraction category over the last decade. It also projects 7% annually growth between now and 2030—a rate that will more the double the Utah's solar installer workforce (to around 1k of the states total solar industry employees). (15)

Salt Lake County Trends

A significant percentage of Utah's clean energy industry is localized to Salt Lake County. In fact, Salt Lake County ranked in the top 25 of all counties nationwide in terms of number of clean energy jobs, with a total of ~17,800 (the nation's top county, Los Angeles, reported ~98,000 clean energy jobs).

Salt Lake County Clean Energy Jobs: 2022	
Industry Subsector	**Total**
Energy Efficiency (including Energy Star appliances manufacturing, high efficiency HVAC, green services)	13,900
Renewable Energy Generation (solar and wind primarily)	2,300
Clean Vehicles	1,200
Grid (storage, modernization, smart)	450

Skills Gap Analysis: Directional Estimates

To my knowledge, neither Utah nor anyone in the Salt Lake City region has conducted rigorous skills or jobs gap analysis to identify the key green jobs types most likely to experience worker or skills gaps in the near future. However, some of our neighboring states, counties and cities (e.g., California, San Diego County, and Phoenix have), providing directional insights—though of course there are important differences between regional economies and growth rates, so these references are included here as illustrative, but not necessarily reflective of Utah's and Salt Lake's green workforce trends.

Lessons from our Neighbors

First, California is leading the nation in climate-related work and jobs, and in 2019 it projected a 9% growth rate in energy-related jobs in the coming decade, equating to just over 275k new state jobs. Of the green skills and jobs types captured in their analysis, "12 are expected to have more than a 15% growth in employment" and already represent about 250k workers in California (16). These high-growth green jobs include the following construction and skill trades types:[3]

Highest-growth Green Jobs and Skills: California's Forecast	
Industry Subsector	**% growth forecast through '28**
Solar Installers	77.6%
Wind Turbine Service Techs	25.5%
Electrical Power Lines Installers and Repairers	11.2%
HVAC Maintenance and Installers	10.2%
Plumbers	9.7%

California's statewide analysis also forecasts "concerning shortages" in many of these construction-related fields critical to the state's clean energy goals noted below, which it sums as a "greater concern"

[3] *Other high-growth green skills and jobs types include enabling professions and services, like IT security analysts, market research analysts and specialists. The report notes, however, that "examining shortages in these occupations at the state or regional level can be misleading, because these occupations generally require four-year college degrees and college graduates are very mobile."*

than any of the other jobs and skills gaps noted. Barring changes in the baseline trends, the report notes that "a shortage of qualified labor in these occupations will also become a major constraint in on the energy sector in California."[4]

The table below shows this projected shortage, along with the current annual new job completion (intake) rate in the state and the % acceleration needed to meet projected demand.

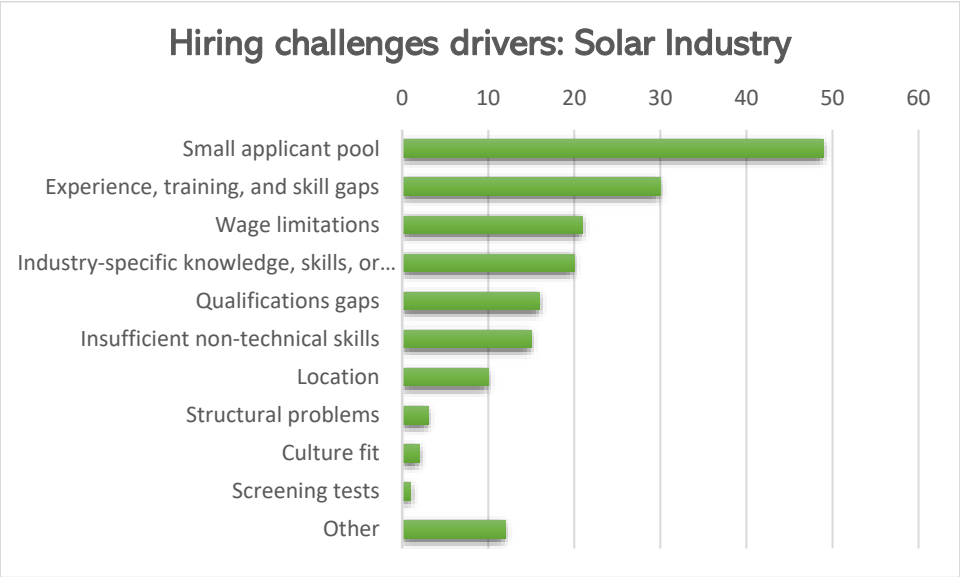
California Clean Energy Skill and Trade Gap Analysis			
Energy Industry Subsector	**Project Annual Worker Shortage**	**Annual completions ('15- '18)**	**Acceleration needed based on gap**
Electricians	8.5k	2.3k	370%
Plumbers	7.4k	.6k	1230%
First-line supervisors	6.3k	2.6k	230%
Installation, Maintenance, and Repair (other)	3.1k	1k	310%
HVAC Installers	2.5k	1.8k	38%
Electrical Techs	1.2k	.4k	300%

At the city level, as noted above, Phoenix conducted detailed analysis of the workforce it expects to need based on climate action plan and related investments. In sum, it forecasts "51k jobs will be created and supported in the city of Phoenix [through its] climate interventions," of which approximately 82% are expected to be transportation-related and 17% energy-related (the remainder being in other fields). (17)

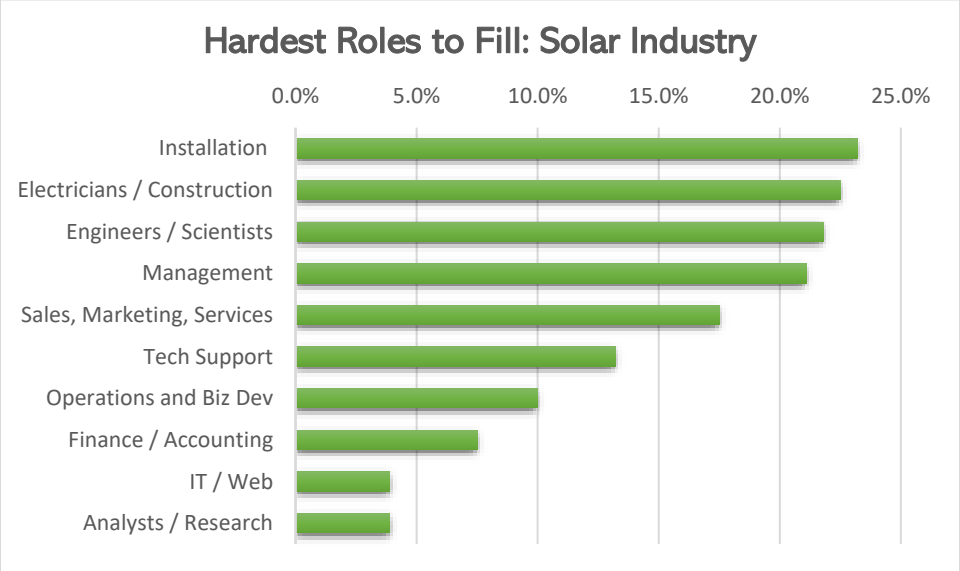
Industry Case Study: Solar

Because it's still relatively new, growing quickly, and closely tracked, the solar industry offers additional insight into the workforce trends captured in broad strokes above. For example, in the 2021 Solar Jobs Census, the Interstate Renewable Energy Council (IREC) notes 89% firms are already reporting hiring difficulties. (18) The key drivers of these difficulties are:

[4] *In its own analysis, San Diego county also notes that certain other job fields are likely to constrict in the mid- to longer-term (i.e., 2030 and beyond): "An employment contraction rate of -75% in the county's natural gas sector has been estimated for the period from 2031 to 2050."* (22)



Solar companies also reported the hardest roles to fill, with construction and installation roles at the top of the list (see below). IREC explains a few of the key drivers for these difficulties: "For some positions, such as electricians and engineers, the length of training and education needed is a barrier. Licensed electricians typically have 4-5 years of training. Other barriers, such as lack of awareness of clean energy pathways, also contribute to recruitment challenges."



Salt Lake City Insights: Gaps, Strengths, and Weaknesses

As noted above, I haven't been able to find detailed skill or jobs gaps analysis or trending for the Salt Lake regional area or Utah more broadly. However, during interviews, I heard anecdotal evidence that green workforce gaps are already impacting regional projects. (I spoke with many different stakeholders, representatives, and interested parties, including local and state government, most of our major regional educational institutions, labor leadership, community and LIDAC representatives, experts, and private companies.)

The subsections below summarize my impressions from these many interviews, both in terms of workforce gaps and regional strengths and weaknesses.

Listening Tour Input: Salt Lake City Gaps

The following themes emerged around existing recruiting, hiring, and staffing challenges in the Salt Lake City area:

- **The skilled trades gap and green jobs:** The national trades gap (lack of workers in skilled construction roles) is well-documented nationally and discussed in previous sections. These trades gaps also show up in our regional green jobs and skills. Industry stakeholders in interviews noted, for example, difficulties at times finding workers to complete building efficiency and retrofit projects (e.g., high efficiency HVAC, electrification, etc.). These gaps have not only slowed down some projects, but they've also created a context in which some local officials are hesitant to update building codes or provide wide-scale efficiency incentives or rebate programs without first seeing a stronger, dedicated workforce or workforce training programs in place.
- **Trained and certified worker recruiting and hiring:** Both industry and educational leaders noted significant and increasing difficulties finding or producing enough workers with specific post-secondar education certifications, like commercial driver's licenses (CDLs). Our local programs note they're moving as fast as they can but can't meet demand. This trend has impacts ranging from the city's direct programs, like Waste and Recycling, to green construction jobs generally.
- **EV Charging Infrastructure and Vehicle Maintenance:** Since 2020, the annual number of both new electric vehicles and charging stations has approximately tripled (fully electric vehicles accounted for 8.1% of all new vehicle sales in the US in Q4 2023). (19) Most analysts expect share of EVs to more than double again by 2028. Nationally, there's growing concern about the lack of EV-trained maintenance workers, both for privately owned vehicles and for public and private fleets. That concern was echoed by several industry stakeholders in our region, including dealerships. Additionally, as the scale of EV charging infrastructure increases to support the growing share of EVs, I noted growing concerns from those working to hire or certify electricians who can complete this work.

Listening Tour Input: Salt Lake City Workforce Ecosystem Strengths and Opportunities

The following table summarizes my impressions of our regional green workforce ecosystem strengths and weakness:

Listening Tour Impressions on Regional Green Workforce Development Ecosystem	
Strengths	**Opportunities and Weaknesses**
Strong USHE institutional ecosystem, with 11 regional workforce certification programs of varying types (18 statewide), with total enrollment of 21k+ in 2022	Limited state and cities funding for green workforce development specifically
Green workforce certifications at Utah, Utah State, SLCC, and Weber St: • U of U – Resilient Energy Engineering • USU – Advancing sustainability through Powered Infrastructure for Roadway Electrification (ASPIRE), with pathway partners • Solar Installation, Energy Management, and related mature programs at SLCC • Weber St – Hybrid and EVs	Overall regional green workforce coordination, pathing, and partnership is mostly absent in both Utah and the Salt Lake City region
Mature Industrial Assessment Center at University of Utah, capable of running building efficiency assessments and training new professionals; new IAC center awarded at Weber State (with a planned focus more on training than assessments)	Community awareness of green jobs and skills as fast-growing and potentially higher paying tracks is lacking and not often publicized, especially among populations who might benefit most from access to these jobs and fields
Low regional unemployment and strong overall economic growth	No rigorous frameworks or workforce studies at state or regional level on the key trends, gaps, and potential mitigation measures
Unified city school district, with a strong secondary education CTE program and existing model for industry partnerships	Recent anti-DEI state legislation creates uncertainty at a time when we need to rapidly diversity our green workforce
	Salt Lake region is fragmented: ~2.7M Wasatch Front residents, ~1.3M SLC metro area residents, ~200k in SLC. ~25 total cities in Wasatch Front region
	No mid- or long-term resourcing

Lastly, while it's not a workforce gap per se, it's worth expanding on the final opportunity noted above, tied to **workforce diversity.** Leaders in several regional green jobs and skills education and certification programs noted ongoing struggles with program diversity and recruiting, with student participation from non-white and especially non-male populations lagging well below our overall community diversity rates. This represents an important emphasis for our regional workforce ecosystem—one that requires careful, focused attention to attract a broader set of workers than

we've had in the past. We will not keep pace with expected green jobs sector job growth without a significantly more diverse workforce than we've had in past decades.

Learning from Others: What Are Acting Cities Doing?

Salt Lake City hasn't yet formally launched a green workforce development program or strategy as part of its CAP or annual planning processes. As the city considers potential actions to take, it can be helpful to learn from what other cities are doing or have tried already. In this section, I offer some initial context on the state of large cities' plans relative to their CAPS, followed by two frameworks for assessing other cities' actions, as well as link to specific programs that represent different strategies and tactics.

What Major City's Climate Action Plans Reveal about Workforce Strategy

In the summer of '23, Brookings analyzed 50 large US cities' climate action plans (CAPs). Given the workforce trends noted throughout this report, Brookings noted that "Preparing a climate-ready workforce requires an all-hands-on-deck approach among public and private leaders across the country—including federal policymakers, state community college systems, and individual employers." (20)

And while, of course, CAPs don't necessarily capture the entirety of a city's workforce development efforts, as vision-setting and foundational documents for cities, Brookings points out they "ideally should encapsulate many of the elements essential to local infrastructure workforce development."

> *Green workforce development action creates win-win-wins. The city's reputation is enhanced, the local green economy and related projects accelerate, and local at-risk or historically disinvested populations and communities can benefit enormously from well-designed pathways into good, green jobs.*

How do the US's major cities do?

- 47 mention green jobs, but mostly only in passing.
- 19 include detailed information on collaboration with other institutional and organizational partners when discussing workforce development.
- Only 11 include information on funding—or additional programmatic support—for workforce development.[5]
- Only 9 include specific dates, benchmarks, or timelines for workforce development.[6]

[5] *These cities are Denver, Cincinnati, Chicago, Detroit, Indianapolis, Los Angeles, Miami, Nashville, Pittsburg, and San Francisco, and San Jose*

[6] *These cities are Boise, Cincinnati, Columbus, Detroit, Indianapolis, Los Angeles, Memphis, Philadelphia, and San Francisco,*

A Taxonomy of City Tactics in Green Workforce Development

Given the substantial risks to CAPs by prolonged green workforce shortages, we have important work to do in cities across the country to create green workforce development strategies and document them in or alongside our CAPs.

However, despite these gaps in cities' CAPs, many cities have launched or are in the process of launching green workforce development programs. These range from scrappy pilots and analyses to large, budgeted, multiyear and multipronged strategies.

During the listening tour phase of the project, I reviewed dozens of these CAPs, along with workforce development plans and programs, and talked to city representatives across the country about their green energy goals and workforce plans. While the tactics and strategies are diverse, I clustered them around four general themes (with sample actions noted under each, for illustration of the types of tactics cities are using). Additionally, while one might assume that strategic workforce efforts would start in the "Set the Vision" cluster, that's not the case; many cities' efforts include programs or policies intended to deliver on specific objectives, without necessarily having a larger strategic framework or even overarching workforce development goals in place.

 Set the vision	 Facilitate Regional Collaboration	 Catalyze Action	 Launch or Partner on Programs
• Align on current state and set goals (often tied to CAPs) • Track and report on progress on key green jobs industries • Align city resources and budgets with workforce development goals	• Build workforce dev forums or task action committees • Assist or lead Green Workforce Development Boards or Economic Development Councils • Offer hiring accelerators (e.g., jobs marketplaces)	• Set policies to accelerate action • Provide education and awareness (e.g., building efficiency training for building mgrs.) • Incentivize key actions or outcomes • Create and promote paths for LIDAC populations	• Launch city programs with workforce dev components (e.g., building retrofits, green vehicles) • Partner to sponsor training and apprenticeship programs (both for industry and city jobs) • Launch or sponsor industry-facing programs directly

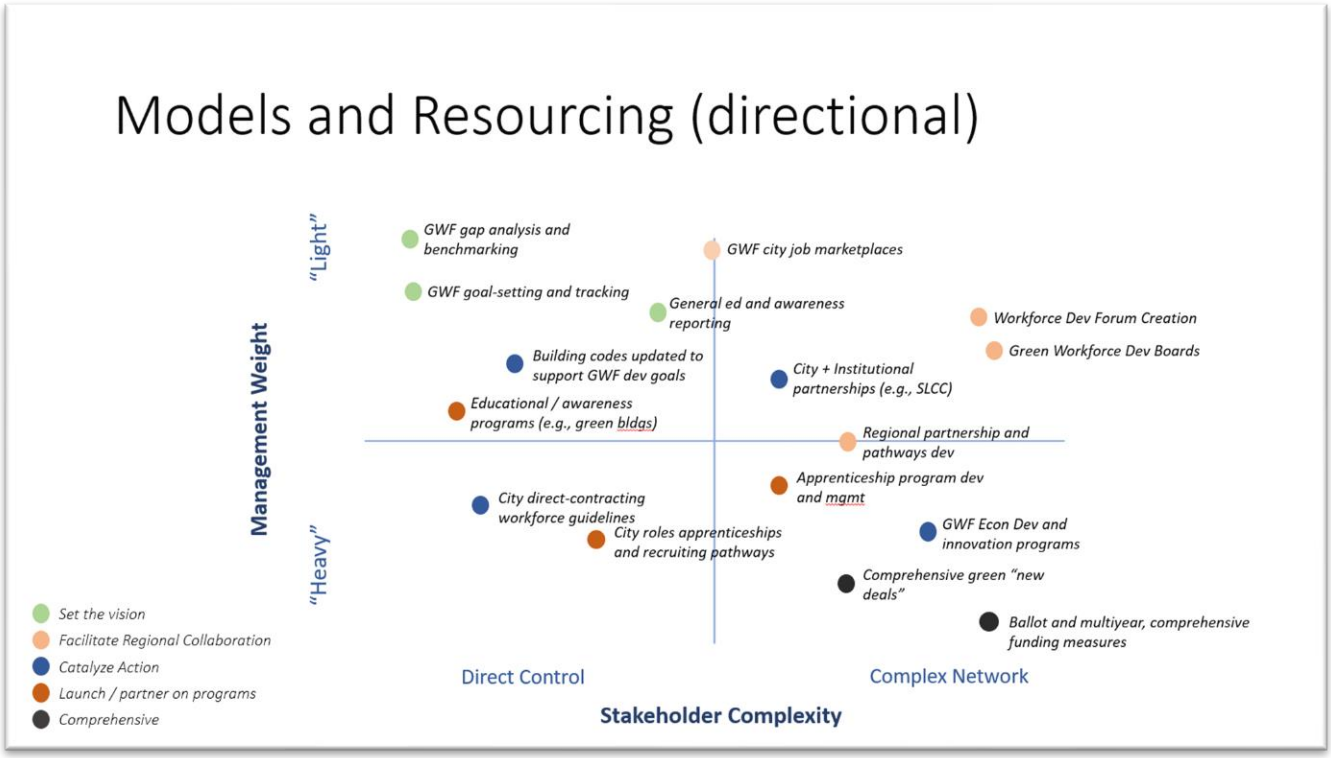
Most cities I reviewed tend to focus their efforts and plans on one or two of these clusters. Or, to state the inverse, only a few cities have strategies that encompass all four areas—which is to be expected given resource constraints, competing priorities, and opportunities costs.

Programs Map: Assessing Workforce Dev Tactics by Management Weight and Stakeholder Network Complexity

Given the common constraints and variety of tactics employed, it can be helpful, as we consider the feasibility and effort associated with potential tactics that might be applicable to the Salt Lake region, to map these tactics based on two dimensions:

- **Management Weight:** Does the program have a "heavy" or "light" administrative burden for the city? Is that burden short- or long-term?
- **Stakeholder Complexity:** Can the city directly control or launch the program, or is a large or complex network of players required for success?

Below is a programs map, plotting representative city programs from across the country across these two dimensions.



Conclusion and Next Steps

While most direct evidence and forecasts suggest we'll face important skill gaps in our green workforce in the coming decades, it doesn't necessarily follow that city's must act to address these gaps. For example, one could argue that market-based programs and natural workforce supply-demand dynamics will be sufficient to address major issues, at least for now. And given ever-present resource and budget constraints, cities like Salt Lake face other important challenges as well, of course, which may be higher priorities.

That said, there are important reasons for a city like Salt Lake to consider taking action. These reasons include:

- As the capital city, this is an opportunity for Salt Lake to lead on an issue with direct tie-ins to city priorities, like clean air and economic development. Conversely, there's reputational and economic risk in not taking action: as competition for green skills heats up in the coming energy transformation, cities and regions with stronger plans and ecosystems will out-recruit and out-perform those without them.
- Local workforce ecosystems benefit substantially from coordination across parties, and cities can naturally play this role well.
- "High road" job creation is much more likely with policy or programmatic support.

Lastly, **targeted green workforce development action creates win-win-wins.** The city's reputation is enhanced, the local green economy and related projects accelerate, and local at-risk or historically disinvested populations and communities can benefit enormously from well-designed pathways into good, green jobs.

Assuming SLC takes action, I see a few organizing principles that can help set strategic foundations. Notes that these aren't necessarily mutually exclusive, though most cities that are taking action seem to gravitate to one of these principles most.

Organizing Principles: Foundations for Local Government Action in Workforce Development		
Top Down 	Use economic and jobs analysis to create understanding of relevant workforce trends, gaps, and needs. Action is focused on the highest priorities skill gaps.	Success is tied to filling gaps.
Bottom up 	Focus efforts on community outcomes, like LIDAC groups, building pathways for the communities and community members who will benefit most from access to good jobs in a fast-growing industry.	Success is tied to community benefits.
Project- or metric-centric 	Focus policies, incentives, and awareness efforts around the types of projects most beneficial to the city's CAP and related goals.	Success is tied to productivity or specific metrics.

At the tactical level, once an overall strategic focus has been set, there are several potential roles Salt Lake City can consider, vis a vis green workforce development.

- **Regional workforce trends lead:** helping study and forecast key green jobs trends and potential gaps, then using those forecasts to focus attention and action
- **Internal workforce practitioner:** building its own internal recruiting and ambassador / apprenticeships programs, primarily designed to feed directly into city jobs
- **Task force or forum organizer:** Organizing a regional forum to bring together community, government, industry, and institutional leaders to drive alignment and collaboration

- **Program sponsor:** Launching or sponsoring training or apprenticeship programs, built around the highest-need job
- **Work accelerator:** Passing forward-thinking policy, incentives, and community education / awareness programs, designed to prompt action around important green energy projects, such as building retrofits, solar energy, residential electrification, etc.
- **Equity and community outcomes champion:** Helping design and promote job pathways into good, high-need green jobs, for the communities that will benefit most from access to them

Lastly, as Salt Lake City considers *when* to take action, it's worth noting that workforce ecosystems are inherently multifaceted, with many collaborating stakeholders and actors, when they're working well. By nature, they take time to organize, focus, and accelerate. Cities with strong climate action plans and related goals that depend on a healthy regional green workforce, but who wait to act to positively influence workforce trends until they encounter major challenges, may find that it's difficult to catch up.[7]

In the coming phases of this project, we'll be exploring in greater detail these and other potential approaches, as well as conducting more detailed analysis of our current state.

If you have feedback, questions, or suggestions on this report or green workforce development in the Salt Lake City region, please reach out to Nate Chai @ natha.chai@slcgov.com.

[7] *My intent here isn't to be fatalistic. There are ways to begin acting that don't require huge investment and multiyear plans, such as pilot programs, skill gaps studies, and workforce forums. To the degree that Salt Lake City believes a healthy green workforce may contribute to its economic, community, and / or climate goals and that there may be risk of regional shortages in key subsectors, it's worth erring on the side of getting ahead of trends, rather than trying to catch up to them.*

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