Building skills ecosystems for a Just Energy Transition (JET) in the food and beverages manufacturing sector

FINAL REPORT: SKILLS IDENTIFIED

FoodBev Manufacturing SETA

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

real Centre For Researching Education and Labour

The purpose of this document is to highlight and draw out the occupations and skills identified through this research. The purpose of this research is to better understand the skills implications of the just energy transition (JET) (in terms of demand and supply) for the food and beverage manufacturing sector, in selected geographical locations and skills landscapes (hereon referred to as mini-cases). The research built on findings from FoodBev SETA's energy hotspots research (undertaken by Wits REAL) which informed the selection of the two sub-sectors and geographical locations in which to undertake a skills ecosystems mapping exercise. The research's findings lead to a set of recommendations on how best FoodBev SETA can provide support to enable a more effective JET skills ecosystem within the sector.

Two sets of occupations and skills insights are identified and presented. These being:

- Core occupations and skills identified to build and coordinate a collaborative, effective skills ecosystem for the food and beverage manufacturing sector to enable a Just Energy Transition (JET). The core focus of these occupations are on **roles and skills to leverage or mediate change** e.g. Government, Company and Education Institution Directors, Energy or Sustainability Strategists / Advisors or Community Liaison Officers. Insights are drawn from two mini-cases: The baked goods manufacturing sector in the City of Ekurhuleni, and the fish and seafood processing sector located in the City of Cape Town Centre / Blaauwberg areas adjacent to the West Coast.
- Occupations and/or skills highlighted through the research as **critical or needed to decarbonise and reduce energy consumption** in the food and beverage manufacturing workplace e.g. Electrical Engineer or Diesel Mechanic. It should be noted that this is not the core emphasis of this research, with FoodBev SETA Project 2: Energy hotspots providing a more in-depth assessment of the specific occupations and skills required to decarbonise the sector.

Some key overarching skills findings:

Skills demand

- Much of the skills focus is on high- and intermediate-occupations, such as senior leaders and professionals (e.g. directors, lawyers, engineers and topic specialists) and developers and implementers (e.g. policy and project managers).
- Less emphasis is placed on entry-level occupations (e.g. machine operators), who through this research emerged as absent and/or ignored from the JET conversation.

- Access to base energy technical skills are not an area of concern. However, specialist skills such as Heavy-current Electrical Engineers, Marine (vessel) Engineers and Renewable Energy Specialists are lacking.

Skills supply

- Proliferation of short courses offered - likely a direct response to employer needs to grapple with and implement renewable energy technologies.
- Anecdotal evidence suggests that many of these courses are not accredited.
- Work environment is a critical consideration for course delivery e.g. being cognisant of employee power dynamics, ability to take time off for training, working in sometimes chaotic environments, language diversity, and technical-literacy ability.
- Critical need for basic foundational and/or bridging vocational courses such as numeracy, mathematical capacity, reading and writing to ensure that those who received a substandard education. Occupations and skills needed for a building and enable a flourishing skills ecosystem

Core occupations and skills required to build and coordinate an effective skills ecosystem

While the skills required within each food and beverage manufacturing sector will vary from place to place, over time and at different layers within the system, this research suggests that there are some core overarching occupations that are required for a building and enabling a flourishing skills ecosystem to enable a JET. These occupations are identified as key for mediation, collaboration and enablement of JET within the sector over time.

Table 6: Core occupations and skills required for an effective food and beverage manufacturing JET skills ecosystem

X = indicates where the occupation will be required as a leverage professional or mediator within the skills ecosystem.

Occupation / Skills level	Skills ecosystem dimensions					Just energy transition-related skills required Technical
	External system catalysts and support (e.g. legislation, investment)	Collaboration and interdepen-dence in the system	Common thinking / mission between national and local	System leadership anticipation and adaptability	Skills ecosystem enablers (e.g. recognising local context, technology innovation, coordination, inclusivity)	
High-level						
Director (Government)	X	X	X	X		**Technical skills** ● Government planning and reporting mechanisms for energy ● Understanding of Public Service / Energy regulations and legislation ● Management of JET-energy related policy research and implementation **Core skills** ● Organisational strategic planning, performance and financial management ● Planning and organising ● Establishment and management of complex relationships and partnerships ● Stakeholder engagement ● People management ● Strategic capability and leadership skills to manage change across the business as it adjusts to JET ● Change management
Director [Operations] / CEO (Industry and business)	X	X	X	X		**Technical skills** Oversight of the entire business incl. energy-related activities Accountability for all company operations Inform, develop and execute company business strategies to achieve goals - acknowledging JET in overarching strategy and related activities and/or JET-specific Provide strategic advice to inform company's JET-

						related strategic objectives and investments Maintain a deep knowledge of JET-related opportunities to inform decision making Also see Director / CEO (NGO) **Core skills** ● As above ● JET-related strategic, legislative and commercial negotiation ● JET-related decision-making / sign off ● Critical thinking and problem solving to develop a new strategic direction and understand the implications of energy crisis on current strategy ● Motivate benefits of JET ● Decision-making to advance JET within the sector and company ● Build trust with key JET-related partners and stakeholders
Director (Skills provision / research)		X	X	X		**Technical skills** ● Oversee and direct education policies, programmes and initiatives to ensure they acknowledge / include JET ● Enable/access funding to support development and implementation of JET-related courses ● Deep understanding of JET-related education, training and learning to plan integration into curricula (basic and higher education) ● Work with HR professionals to plan, develop and integrate JET into job requirements / skills planning **Core skills** ● As above. ● Acquire, maintain and grow collaborative partnerships (government, industry, civil society) to enhance skills ecosystem to develop and implement JET skills programme ● Collaboration with skills ecosystem actors to address JET skills challenges
Director / CEO (NGO)		X	X	X	X	**Technical skills** ● Drive and advocate acceleration of JET / decarbonised future ● Draw on network to provide guidance on JET / decarbonisation journey ● JET strategic planning, target setting, activation and communication **Core skills**

						● As above. ● Promote / advocate for a common JET mission ● Proposal writing ● Bring together / facilitate strong JET-related networks for collective and unified voice to ensure significant presence and active participation in energy, education, food manufacturing sectors ● Ethical leadership (incl. voice of the excluded / community)
Electrical engineer (senior)	X				X	**Technical skills** Design (in collaboration with employees / community) energy efficient electrical systems for new installations and optimise existing systems to reduce energy demand and/or energy access to surrounding communities Develop quality checking documentation for energy efficient designs **Core skills** Communication with e.g. IRM teams to ensure that a siloed approach is not taken Collaborate with other engineers in the sector to identify suitable JET-related technical solutions that have shared value
Finance / Investment specialist (Climate, energy, sustainability)	X			X	X	**Technical skills** Strategic financial planning and analysis to mitigate the effects of energy prices on the company / sector's operating costs Analyse financial data, market trends and industry benchmarks to inform and make decisions on investments to achieve energy resilience Climate financing to get additional funds and possibly concessional finance or carbon trading credits to support JET ESG requirements for new investments and what lenders will require Understand / implement reinvestment to achieve JET mission **Core skills** Strategic, critical thinking and decision-making skills to inform investment in mitigation options Finance negotiation

Lawyer (Environmental, energy)	X					**Technical skills** Deep understanding of environmental and community rights and laws relating to renewable energy, sustainability and climate change Create relevant legal correspondence and documentation **Core skills** JET-related regulatory and defence research and analysis Advocate for JET-related regulations and protections Negotiating terms for new interventions and/or community/employee rights Ability to engage with government, industry and individuals Effectively communicate how interventions could impact communities, employees or biodiversity
Strategist / Advisor (Energy/Sustainability)			X	X	X	**Technical skills** ● Conduct JET-related research to provide up-to-date and context relevant advice / develop strategy ● Provide advice / develop strategies on how to improve energy efficiency and sustainability to reduce cost, meet environmental regulations, and convert to renewables within a food and beverage manufacturing environment ● Provide advice / develop plans for implementation, monitoring and reporting progress and impact (economic, environmental and social) **Core skills** ● Communicate (verbal and written) options and facilitate decision-making ● Maintain professional relationships and networks to keep up to date on latest developments, and to initiate beneficial JET-related enabling relationships
Intermediate level						
Community Liaison Officer		X			X	**Technical skills** Ethnographic to understand people and cultures regarding their customs, habits and differences

						Ability to do qualitative research on local communities and socio-economic factors to inform JET activities Understanding of social indicators to monitor and evaluation value of community integration into energy solutions **Core skills** Communication with cultural sensitivity when dealing with local and affected communities Local community knowledge Stakeholder engagement to ensure inclusivity in energy-related mitigation activities Negotiation skills for addressing any community complaints or issues
Educator / trainer (food, energy-related, JET-occupation related)					X	**Technical skills** Latest just energy (social impact, efficiency and decarbonisation) knowledge Curriculum development skills so that JET issues can be integrated into existing or new curricula Teaching, drawing on latest JET insights and keeping up to date with developments as they occur in this rapidly changing environment **Core skills** Communication of the need for change to skills provision management Collaborate with other JET-related educators to leverage training synergies and identify common areas for change / new course development and accreditation
Policy developer	X		X		X	**Technical skills** Undertake JET-related research (regulations, economic, technical, social, environmental) to inform policy Good understanding of global, national and food and beverage sector climate change, energy, sustainability and social justice, policy and regulation **Core skills** Develop, write and edit JET-related policy Organisation and facilitation skills to develop policy

						collaboratively
Programme / Project manager		X			X	**Technical skills** Development and implementation of JET-related (energy efficiency, renewable technologies, research, policy) programmes and projects Identification and proposition of JET-related interventions and mitigations (incl. community) Ability to identify risk and mitigating solutions Technical understanding of core energy / food and beverage manufacturing processes **Core skills** Managing and coordinating team members (e.g. senior management, engineers, employee / community representatives) to effectively deliver a project within budget and time
SETA skills / research manager (Skills provider)		X			X	**Technical skills** Development and oversight of integration of JET-related occupations and skills in SETA strategies, SSPs and skills development programmes Ensure strategies and plans inform and/or align regional and national JET-related policy and implementation plans Conduct / oversee relevant JET-related research to support and expedite improved skills development and capacity within the food and beverage sector to enable a JET **Core skills** Collaborate with SETA colleagues, and external stakeholders in government, industry (incl. SMMEs), skills providers, other relevant SETAs, and employee / community representatives to develop and implement cohesive and cross-functional strategies and plans
Skills research / development specialists (Food, sustainability, energy, skills)	X				X	**Technical skills** JET skills planning and collaboration with government, business, skills providers and civil society Qualification design for new and changing roles Research and analysis to inform JET skills policy and

						implementation plans Skills ecosystem thinking that allows innovative career development pathways for employees and local communities **Core skills** Analytical thinking to be able to deal with complex data (political, economic, social, technical, legislative and environmental) Communication to get insights from and then communicate back to the collaborative group of actors
Sustainability manager	X	X		X	X	**Technical skills** Oversee environmental and social compliance requirements in relation to energy efficiency and decarbonisation carbon Oversee / undertake JET-related measurement, monitoring and reporting (incl. economic, environmental and social) Identification of behavioural (employees and local community) solutions to energy use Knowledge of both business and community energy consumption issues and energy-related regulations **Core skills** Circular system thinking to ensure Environmental, Social and Governance (ESG) issues are fully integrated into business and sector strategies Collaboration as ESG is a cross cutting discipline within a business and the sector
Technical manager (food manufacturing)	X				X	**Technical skills** To manage and coordinate the production line to reduce issues associated with e.g. loadshedding e.g. refrigeration, turning off of equipment, or machines abruptly stopping Conduct regular evaluations to mitigate potential JET-related technical activity implications on operations (and local community) **Core skills** Ability to engage with employees (and community) to identify JET solutions

Entry level						
Administrator Coordinator		X			X	**Technical skills** To provide effective and efficient support to JET skills ecosystem forum / platform coordination lead To capture and disseminate information e.g. key discussions and actions during and from JET-related collaborative forums / dialogues **Core skills** Maintain and support good communication between stakeholders to ensure clarity of actions and roles, and to expedite action Agility to respond proactively to demands and actions required to maintain forum impact Ability to interface with multiple stakeholders in a professional and timely manner

Informed by AltGen (2024); DPSA (2019), dtic (2022), Energy Council of South Africa (2022), Green Recruitment Company (2023), HyperonDev (2024), Indeed (2022), JustTheJob (2024), merSETA (2023), Pnet (2024), SCG (2023), Unity Environmental University (2024), Wits REAL, (2023), Yates Recruitment (2024).

Skills scarcity:

Occupations and/or skills highlighted through the research as critical or needed to decarbonise and reduce energy consumption:

- Heavy current electrical engineers, who are required to sign-off new plants.
- Regarding specialisms those highlighted included energy management and optimisation, particularly for seagoing staff, as this will have a direct and immediate bearing on the energy use of the vessel and the onboard factory; renewable energy (solar and wind) specialisms, energy efficiency auditing and practice for cold chain maintenance.
- There is a need for 'a lot more people knowing a little bit about energy' to build and enable a JET in the sector, and more renewable energy and climate change specialisms that are specific and relevant to a region and/or sub-sector.
- Skills highlighted as critical for dealing with the complexity of operating a business in these current times, included leadership, design thinking, problem solving, critical thinking, complex multi-stakeholder project management, negotiation and stakeholder engagement.

Skills-related recommendations

- **Short course accreditation:** Need better understand: 1) the level of accreditation of JET-related short courses offered and/or being used by the food and beverage manufacturing sector, 2) the reasons for developing / using unaccredited courses, and 3) challenges and recommendations for promoting the accreditation of these courses.
- **Develop and/or support JET-related awareness raising courses** for:
    - Senior management (e.g. Financial, Managing, Operational and Technical Directors and Managers) to improve understanding of renewable energy landscape in South Africa (e.g. regulations) to assist in: 1) deciphering relevant technological and financial (e.g. wheeling) opportunities to inform decision-making and investment; and 2) to better understand the dimensions of a just energy transition, and the importance of including communities in decision-making and/or implementation.
    - Entry- and intermediate-level jobs (which are often neglected e.g. on boats, in bakeries] to enable them to better contribute to JET-related decision-making and problem-solving in the workplace, such as Machine Operators and how

they can contribute to operational efficiencies to reduce energy, as opposed to just operating a machine.

In addition, given the concerns raised on a waning interest in entering the sector, it is recommended that FoodBev SETA develop or **revise their strategy to better promote and support interventions to attract new entrants into energy-related jobs** in the food and beverage manufacturing industry.

- Given industry associations are proactive in the sector, collaboration with them could highlight the potential growth in JET in the sector and the associated job opportunities in the sector.
- Education institutions and training providers are pivotal stakeholders to collaborate with to raise awareness of the different JET-related skills pathways available from entry-level artisanal jobs (e.g. mechanics) through to management within the sector.
- Where feasible, provide incentives (e.g. learnerships and bursaries) to youth to encourage entry into JET-related positions within the sector