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FUTURE SKILL NEEDS IN THE ALBANIAN ENERGY SECTOR

Report summary

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1. Albania's energy sector

With a population of 2.8 million and GDP of USD 15.8 billion, Albania has averaged annual growth of 2.4% for the past 10 years (World Economic Forum, 2019). Services account for almost 48% of GDP, followed by industry at 30% and agriculture at 18%. Key industries include hydropower, tourism, textiles, mining and metallurgy. The country's economy is heavily reliant on trade with Italy, which accounts for 52% of total exports.Albania belongs to the small group of countries that produce at least 90% of their electricity from hydropower. In 2019, petroleum products contributed almost 58% of total primary energy production, followed by renewables with around 36%, with solid fuels (3%) and natural gas (3%) accounting for the remainder. Albania imported almost 32% of its total energy consumption in 2019, with transport (40%) and households (24%) accounting for the bulk of consumption. In the light of climate risk, the energy sector's key challenges are to diversify energy supply, increase efficiency and savings, and improve management of the network. The share of annual production contributed by hydropower could drop by 15% to 20% by 2050, as a result of increased water scarcity, but renewables such as solar and wind offer untapped potential in the country.Services account for almost 44% of employment in Albania, followed by agriculture (36%) and manufacturing and construction (20%). When compared with their respective GDP contributions, these percentages indicate high productivity in industry and low productivity in agriculture. At 67%, the employment rate is lower than the EU average, while unemployment stood at 11.6% in 2019. In terms of education level, 21% of the Albanian workforce had a tertiary education, while 35% were educated to upper secondary level; 44% of the workforce has a low level of education (compared to 17% in the EU). In 2019, skilled agricultural, forestry and fishery workers were the largest occupational group (36%) in Albania's workforce, although this percentage had declined over the past five years. The share of employed people in professional jobs (12%) and services and sales jobs (17%) increased over the same period. Overall, the evidence indicates that the workforce is gradually becoming better educated and qualified, but skill levels remain lower than those found on average across the EU-28. The Albanian labour market has a large informal sector, with the informal economy accounting for one third of national GDP.Employment in Albania's energy sector is not intensive: with the exception of Transportation (2.3%), each individual sub-sector (Electricity, Mining and Water) accounts for less than 1% of total national employment. Employment in each of these four sub-sectors appears to be less skilled than the EU-28 average. But the share of employment accounted for by high-skilled occupations increased between 2014 and 2019, almost doubling in the Electricity sector. The percentage of employment accounted for by people with higher education increased significantly over the same period. Women are under-represented in the energy sector. But with more than 40% of its workforce aged over 50, there will be an increasing need to replace retiring workers in future: there is thus scope to increase female employment in the sector.

2. Drivers of change in the energy sector

Availability of energy sources: Although Albania has taken advantage of its massive water resources to develop a large hydropower network, studies have emphasized that it will be one of the most water-stressed countries by 2040. It is therefore important for Albania to diversify towards alternative energy sources, such as wind and solar.

Economic growth and energy consumption: Economic growth in the country will lead to increased energy consumption, highlighting issues like renewable energy and the greening of economic sectors. Interviews confirm that domestic energy consumption increased by 10% in Albania between 2009 and 2016; based on this trend, more energy will be needed in future.

Environmental sustainability: The negative environmental impact of hydroelectric facilities is leading to the development of new energy solutions, such as waste-to-fuel and plastic-to-fuel solutions. Another factor is the presence of protected forest areas, which cover some 22% of the territory and are expected to increase.

Climate change: Reduced precipitation is forecast to exert a significant impact on Albania's power sector, which is more than 90% dependent on hydropower.

EU compatibility: As a candidate to join the EU, Albania is transposing EU regulations into its national legislation. These particularly concern maintaining objectives aimed at increasing the use of renewable resources, improving energy efficiency and reducing CO2 emissions.

National policy: State policy is an important means of fostering the adoption of innovation. In Albania, the government provides incentives to promote the production of electricity from renewable sources.

Foreign investment: Albania is encouraging the injection of foreign capital into its energy sector, and European energy companies have invested in the country. Various on-going and planned projects benefit from EU funding or loans from international financial institutions, and further investments will be necessary.

Technological innovation: New technologies are being introduced for the direct use of new sources of energy, such as solar power. New technologies can also provide increased control over processes and plants. Digitalisation will allow for more efficient production, transmission and distribution of energy.

3. Trends in energy-related innovation

In the energy sector, technological solutions are mainly imported into the country by European companies. As the country has no registry of patents in the energy field, an analysis of European patents has been used to fill the gap. The overall results shows that wind energy has been the sector with the greatest inventive activity in recent years, followed by solar and hydroelectric technology. Energy distribution technology has also demonstrated a high degree of innovation. Inventive activity in these sectors experienced a notable peak in the period 2010-2015, and now seems to have entered a less propulsive phase. New technologies have focused on improving pre-existing technologies rather than introducing disruptive ones. Yet some of them introduce new paradigms of use that will imply a stronger redefinition of the skills required to adopt them.

Below are presented eight key areas of inventive activity in the energy sector, listed from highest to lowest inventiveness level.

Wind energy: Although the Albanian government aims to generate 5% of electricity from wind farms by 2030, wind energy production has not yet taken off. Installed capacity for wind is still low due to lack of investment, despite the fact that the government presents wind power and solar energy as parallel solutions for the country.

Solar energy: Solar energy is at the foundation of the country's energy diversification strategy. Various projects are already in operation, under construction, or under tender, with Albania only just falling short of its target of hitting 490 MW of solar capacity by 2020. If all the planned solar projects come to fruition, in 10 years they could be producing the same amount of electricity that the country currently imports.

Transmission and distribution: Energy losses along Albania's shared transmission and distribution chain are estimated at around 25%, and improving energy efficiency is a key national strategic objective. Companies involved in the sector are investing heavily in interconnection facilities, and the network is being extended and improved in the coastal area.

Hydro energy: Albania's biggest facilities produce hydropower. To encourage diversification, the government now gives licenses only to more powerful hydropower plants. As a result, despite future investment in solar and wind energy, the hydroelectric sub-sector will remain important for the country.

Thermal energy: Thermal energy could represent another important source for energy production, because of the structures the TAP project has brought to the country. Some sources predict gas could account for 20% of total energy consumption by 2030. The opportunities provided by use of TAP facilities could make gas one of the top priorities in coming years.

Oil and gas transportation: TAP facilities bring an opportunity for internal gas distribution in Albania, and also represent new technologies that need to be maintained and repaired. The pipeline should thus be considered an energy-related technology for which the country needs to develop the necessary skills.

Energy efficiency: A new law on energy efficiency establishes a series of obligations to reduce energy consumption by the public and private sectors. One positive outcome is expected to be increased awareness among the Albanian people with respect to energy usage and saving.

Transversal technologies: Some higher-value technologies are applicable to several of the above clusters. Electrical technologies are widely used in many of them. Mechanical technologies support the design and production of energy sector innovation in a transversal way. ICT innovation is another key transversal technology.

4. Changing job and skill demands in the energy sector

Research reveals a higher demand for three clusters of occupations, as a result of the technological and policy changes introduced into the energy sector: technical or technology-related occupations, business services and related occupations, and expert positions for energy sector reform.

Advanced data mining techniques were combined with desk research and interviews to identify the most relevant occupations in Albania's energy future. This approach forecasts high demand for energy engineers, mechanical engineers, civil engineers, electrical engineers, and all transversal occupations in the first category of technical occupations. There will also be a need for hydroelectric plant operators and solar plant operators, and – in general – a mix of more specialised profiles in the country's three main renewable energy industries: water, solar and wind.

A second category of profiles reflects business-related jobs that are relevant to the business models adopted by companies and the way they organise production, marketing and sales. These jobs can be arranged into two distinct groups. The first includes business and administration professionals related to managing the operational aspect of plants: manufacturing managers, energy managers, operations managers and power plant managers. The second includes market-oriented consultants and representatives: renewable energy consultants, solar energy consultants, renewable energy sales representatives and electricity sales representatives.

In addition, the transformation of Albania's energy sector is driving demand for expert profiles that can help manage the transition to new paradigms: these profiles have not been found in Albania up to now. One important expert profile is the Energy Manager, who monitors energy consumption, detects energy waste, and suggests measures and strategies for more efficient energy use. The profiles of Energy Assessor and Energy auditor are also in increasing demand. High demand for energy-related expertise and consultants to contribute to strategic decision-making, the diffusion of new technologies and investment in renewable energies poses a complex skills challenge in Albania, leading many firms to outsource to international expertise. Another example of expertise with implications for hydropower, solar and wind energy is weather monitoring and forecasting.

Profiles with skills related to different fields – including many other engineering profiles – are very important in the energy sector. In addition, the expected growth of renewables will create new jobs with specific related skills. Meanwhile, the introduction of digital technologies across the energy sector will require both technical and business-related profiles, and the possession of transversal skills related to the IT field. The worker of the future needs to possess a wider skill set, and digital technologies will be a fundamental part of the skills required. New professional profiles are also emerging as a result of the increasing adoption of automation.

As far as medium-low skills are concerned, technician roles will still be constantly required in the sector. It is expected that highly skilled and medium-skilled professions will be in great demand in future, and that up-skilling and reskilling strategies will enable low-skilled workers to keep up-to-date with the introduction of the latest technologies. Soft skills – such as determination, discipline and willingness to learn – will also become ever more important in the future.

5. Sector initiatives to meet changing skills needs

While Albania's traditional energy sector is dominated by large state-owned companies, most renewable energy companies tend to be small and privately-owned. This is exerting a negative impact on technology adoption and skills development initiatives in the sector. The energy diversification policy is not proceeding at the speed initially planned by the government. Limiting factors include the environmental impact of investing in renewables, scepticism over the costs and benefits of new energy sources, a shortage of skills (particularly at VET level), and lack of investment in the existing infrastructure.

A lack of workers with experience and the right skills is undoubtedly limiting growth in the energy sector. A lack of experienced people is a key factor that prevents sub-sectors like solar energy from expanding further. The skills gap is also linked to the retirement of qualified workers, with companies finding it difficult to find new skilled workers to replace them. Transfer of know-how and skills from foreign companies to local people is often lacking, with Albanian workers excluded from high-skilled or technology-related tasks. A mismatch between educational curricula and real-world skills needs is also reported.

This latter mismatch has forced companies to organise further training for new recruits, the up-skilling of existing employees, and outsourcing. Internal training is the most common strategy adopted by companies to deal with the lack of experience and skills in the sector. The government is trying to promote a tighter connection between the public and private sectors, and many companies are working in partnership with universities on training. Automation and digitalisation are viewed as the most important drivers for future change in the sector.

In terms of recommendations, there is a need to increase overall awareness about the profitability of renewable technologies, and their added value for business. Cooperation and communication between all relevant actors and public-private partnerships could be strengthened to ensure the exchange of up-to-date information about the renewable energy sector's evolution. A systematic approach to skills, based on the needs of companies, has been missing: a more systematic approach to skills-needs analysis would help to translate information into action.

The government is working to boost cooperation between education and the business sector, while another recent policy development aims to improve digital skills in the workforce. International contractors could also help, via dedicated skills transfer and development programmes targeting the local workforce.

To conclude, Albania needs a long-term policy agenda, with a clear vision to accelerate the energy transition and the planning of activities in 10-20 years' time, in terms of investments, future development projects, and employment and skills implications. Special effort is needed to strengthen the links between investors/companies, and education and training providers. More opportunities need to be provided by companies for work-based learning. Foreign companies need to include training local people as part of investment packages. And Albanian training providers need to cooperate more actively with their European counterparts, who have already developed curricula and programmes adapted to the energy sector.

Where to find out more

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