

ENHANCING THE TRANSFORMATION TO A GREEN ECONOMY BY ADOPTION OF HIGHER EDUCATION

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Abstract. Innovation in green economy and technologies need future prospects of MBA programs specialized in the energy field. This paper describes the adoption of higher education focusing on the innovative dual master's programme in «Energy Business and Energy Policy and Engineering». This program is implemented by Anhalt University of Applied Sciences in cooperation with other international partner universities in the Republic of Korea and Kazakhstan. The program is developed on the transformation of the energy sector and aim to prepare the future leaders. Through a mixture of theory and practice, students prepare for the complex challenges and different opportunities of the global energy market. The study identifies changes in the traditional MBA curricula and adaptation to current trends and technological, social, political developments that have impacted the energy sector. The curriculum development process, program structure, admission processes, credit recognition system, benefits for students and international partnerships and collaborations are also discussed.

Keywords: *Green economy, MBA double degree program, energy business, energy policy, engineering, Anhalt University.*

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1. Introduction

The concept of study programmes in the higher education is undergoing fundamental changes as a result of the transformation in energy policy and business and innovations in green economy. In the 2020 has been characterized by substantial developments and challenges in the energy industry (Energy Barometer, 2020). Consequently, the need to create a workforce capable of meeting the growing demands and challenges of the energy sector has increased significantly. Higher education plays a critical role in this. They have a great responsibility in preparing the educational framework required to equip students with the knowledge and skills needed to guide this transformation. In this context, these changes have got a global dimension and the need for dual international programs has increased significantly.

In response to these needs, Anhalt University of Applied Sciences, has adapted the existing MBA program to include sustainability perspectives. Therefore, has developed an innovative dual master's program in Energy Business and Energy Policy and Engineering (Anhalt University of Applied Sciences, 2022). This program is focused on three main aspects. First on integration of sustainability concepts and green economy into the curricula. Second on the development of the skills needed for green jobs as a need to

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cover the hydrogen demand. Based on analyses show that in 2022, almost 387,300 people were employed in the renewable energy sector in Germany (Umwelt Bundesamt, 2024) and by 2045 only in Saxony-Anhalt, up to 27,000 jobs are expected to be created from the green hydrogen economy (<https://mwu.sachsen-anhalt.de/energie/erneuerbare-energien/wasserstoff/wasserstoffland-sachsen-anhalt#c391237>). Lastly on the promotion of green innovation and entrepreneurship as a fundamental driver of the green economy (Polas *et al.*, 2022). Developed in cooperation with reputed international partner universities in Korea and Kazakhstan, it aims to prepare future leaders and experts of the energy sector. With a perfect combination of theory and practice, it equips students with deep knowledge in business management, energy policies and energy technologies. Another important aspect of this program is the focus on networking and professional collaboration. Creating the skills to provide students with a wide network of contacts with industry leaders, alumni and other professionals.

The purpose of this study is to explore the transformation and implementation of this program, focusing on its main aspects. In section 2, we will examine the curricula, its development process and the structure of the program. Furthermore, the paper will outline internationalization and cooperation with international partners. Finally, benefits of the program in terms of networking.

By analysing these aspects, this study aims to contribute to enriching existing literature on adoption of higher education. It also aims to give a model for other universities looking to develop similar programs.

MBA Double Degree Program

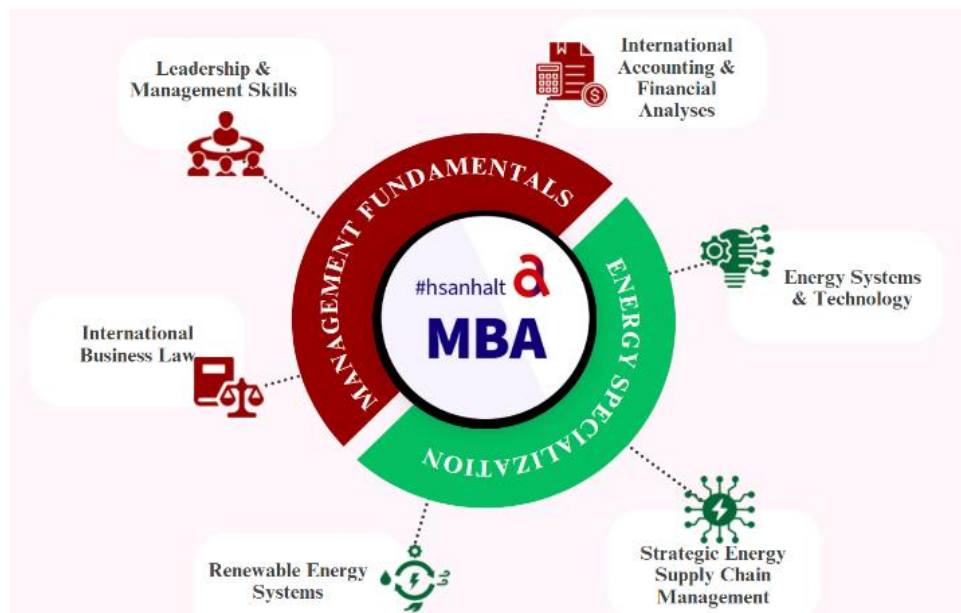


Figure 1. Modules of the Double Degree Program in Energy Business and Energy Policy and Engineering

One major benefit of this new program is the holistic and interdisciplinary approach. By combining engineering knowledge with business management skills in the context of environmental and energy challenges the university aims to prepare Eco-Tech managers. As a result, the admission process is designed in such a way as to attract candidates with

engineering background and practical work experience. This means that not only academic credentials are appreciated, but also the potential to contribute to the transformation of the economy by making it more sustainable. A key aspect of the program is mutual recognition of credits with partner universities. This allows students to attend courses at partner institutions and transfer those credits to the dual program. The double master programme is structured as a two year post graduate course and begins at the partner university. There the students perform the first two semesters of study during which they accumulate 20 credits on each semester. Equipped with 40 credits they transfer the studies to Anhalt University. The process begins in applying and meeting the criteria according to the Study Regulations of Anhalt University (Umwelt Bundesamt, 2024). The programme uses the European Credit Transfer System to facilitate recognition of credits between partner institutions. At Anhalt University the study program starts once all the criteria are fulfilled and is built using a unique study structure organized into two semesters. It includes a practical oriented curriculum that uses innovative and interactive learning methods based as case studies, corporate workshops, manager talks. One of the fundamental objectives is to bridge theory and practice, creating employable graduates who understand the practical market. The first semester includes six mandatory courses covering key program topics. These main modules are focused on the integration of green technologies, energy policies and business management, drawing on the German experience in the renewable energy revolution. The last semester focuses on research and practical work for completing the master's thesis. Students have an 18-week period to successfully complete the thesis and its presentation. This translates into 20 credits that complete the full dual degree framework in Energy Business and Energy Policy and Engineering. At the end of the studies, the students receive a certificate each of the participating partner universities and a worldwide recognized and accredited Diploma Supplement from Anhalt University of Applied Sciences (2022).

The composition of this course is internationally unique creating eco-tech graduates who have been educated in a multinational environment (academic and corporate) equipped with technical knowledge, analytical and soft skills such as creativity and problem-solving and intercultural skills.

2. Internationalization

Internationalization is one of the main pillars of the dual degree program Energy Business and Energy Policy & Engineering offered by Anhalt University of Applied Sciences. This program is designed to develop international and intercultural skills of the students. The MBA in International Trade is the only one of its kind in Germany which is 100% in English, creating an intercultural environment for students from all over the world. Moreover, Anhalt University has established close cooperation with a wide network of 258 international partner universities, from 110 countries (<https://www.hs-anhalt.de/international/studienaustausch-auslandspraktikum-und-semester/partnerhochschulen.html>). Some of these partnerships, are in the framework of the dual master's program in Energy Business and Energy Policy and Engineering. Initially this program was developed in partnership with universities in South Korea to further expand with other partner universities. The partnership with South Korea initiated due to the two countries' progress and their successful experience in green energy. From the point of view of natural resources such as oil and gas both countries are not very rich. However, their approach to renewable energy and green technology is classified as the

most developed countries. This is reflected in their government commitment to sustainability. While Germany has recently launched the *Energiewende* initiative, which aims to achieve 80% of electricity generation from renewable sources by 2050 (EEG, 2023). One of its pioneers in renewable energy, the region of Saxony-Anhalt is thus well on the way to achieving the federal target of 80% by 2030 (<https://mwu.sachsen-anhalt.de/energie/erneuerbare-energien/windenergie>). Focused in wind with a share of renewable energies in electricity generation of 61.5% as of 2020 the region is well above the national average (<https://mwu.sachsen-anhalt.de/energie/erneuerbare-energien>). On the other side South Korea has developed its Green New Deal strategy, by setting as its target the increase of renewable energy capacity to 20% of total energy production by 2030. Based on these data, Anhalt University as one of the biggest Universities of Applied Sciences in Germany has initiated and established cooperation with partners from Korea. Kazakhstan is another strategic partner, as a country who aims to generate 15% of its electricity from RES by 2030 (IEA, 2020). In the future Anhalt University will carefully seek for strategic partners that are suitable for its profile and is looking forward to their partners in Azerbaijan coming together with them. As Azerbaijan is a country committed to reduce GHG emissions 35% from 1990 to 2030 (IEA, 2023). Overall, the purpose of all these partnerships is to adapt higher education to support the transition to green economy.

3. Networking

The dual degree program Energy Business and Energy Policy & Engineering at Anhalt University of Applied Sciences offers a variety of benefits. As discussed previously, one of the major benefits is the wide range of networking opportunities that the program offers. Through collaborations, partnerships and variety of interactive activities, students have the opportunity to broaden their academic and professional horizons in the field of energy. In the framework of the MBA in International Trade, the program includes international seminars, business projects, managerial talks, symposiums, workshops and academic excursions. These events are organized every academic year to connect students with industry leaders, academic experts and peers from different countries. Corporate visits and excursions to European centres such as London, Paris, Amsterdam, Barcelona address current topics of engineering and management. The International Accounting workshop in London, gave to students the chance to talk with executive managers of well-known companies in the field of accounting and banking regarding investment strategies in the area of renewable energy. The Corporate Project Management workshop in Barcelona and the Corporate Finance and Investment workshop in Paris enabled the student to look closely at business practices in Europe and build friendships with business people there. International Management workshop in Amsterdam gave the opportunity to the students to gain valuable management insights into this exciting and innovative brand-new electric vehicle company NIO. During this visit at NIO Netherlands the students were treated to an impressive display of e-mobility innovation and had the chance to meet with the Group Vice President of NIO.

As one of the leader universities in research in renewable energy, in particular in hydrogen, Anhalt University has established a wide international network of cooperation in this field. For several years now Anhalt University has been actively involved in driving the transformational process in renewal energy, in particular with focus on hydrogen technology and infrastructure. In 2023 the university organized the German-

African Green Hydrogen Forum. A conference of international dimensions with the participation and collaboration of partners from Namibia, South Korea and Research Institutes such as Fraunhofer (<https://www.hs-anhalt.de/hochschule-anhalt/fachbereich-wirtschaft/aktuell/hydrogen-forum-2023/welcome.html>). An initiative that contributes to the student's education, in the field of renewable energy. Participation in the Hydrogen Symposium became an impulse for a new journey towards a career in the energy industry for many students, who are now pursuing a career in the energy industry. In 2024, with the scope of promoting science and research the University was assigned the H2-Microgrids@LSA, a project with a value of 1.404.162,63 € co-funded by the state of Saxony-Anhalt and the European Union (<https://www.hs-anhalt.de/hochschule-anhalt/fachbereich-wirtschaft/projekte/microgrids.html>). It consists in investigating how local microgrids can efficiently use the renewable energy generated locally in the region, in both legal and economical way by a pipeline converted to hydrogen and cavern storage (<https://www.hs-anhalt.de/hochschule-anhalt/fachbereich-wirtschaft/projekte/microgrids.html>).

Additionally, the University offers a wide and diverse network of alumni which allows students to benefit from the experience of the alumni who have achieved success in their careers in the field of energy and business. Including but not limited to opportunities for mentorship and professional advice for junior students. All in all, by organizing these events the University aims to not only enrich their academic experience but also to help students expand their intercultural and interdisciplinary perspectives. Moreover, these events are a bridge and create employment and business relationships in the energy market.

4. Conclusion

Adapting higher education to support the transition to a green economy is not a trend anymore but a growing need. It is a complex and essential process to adapt to the global changes. Integrating the Energy Business and Energy Policy and Engineering program into the curricula of MBA was a necessary response to the economic and environmental challenges. This program is an example on how universities can adapt to changing labour market needs. This adaptation has generally come about through international cooperation. Focusing on the energy sector, this program provides a comprehensive experience for professionals who aim to advance their careers in this industry. It gives the opportunity to the students to benefit from a faculty with excellent academic experience and from teaching methods based on real case studies. Networking opportunities and excursions to European cities and collaborative projects with corporate partners further broaden the professional and cultural horizons of students.

Diversity of students creates a rich environment for the exchange of ideas and perspectives. This, combined with collaborations and exchange programs with international universities, ensures that students gain a deep understanding of the global context of business and international trade. The program's international accreditation and opportunities to work on projects with corporate and academic partners from around the world make this MBA particularly attractive to those looking to expand their management knowledge in the context of the global energy industry.

In conclusion, this MBA program offers experience and opportunities for students, preparing them not only with the skills needed to navigate the complex global energy market, but also with professional contacts that could be essential to their future career success.

Outlook

The transformation of higher education in support of the green economy is expected to intensify and take on new forms. Based on current trends and expected developments, the MBA programme in International Trade focusing on the energy sector at Anhalt University is expected to evolve even further. As the energy industry continues to transform, the curriculum is likely to highlight more renewable energy and green technologies. Therefore, to ensure that the program remains a valuable choice for professionals seeking to advance in this dynamic industry, the program should include more modules related to new technologies such as artificial intelligence. It should also be flexible enough to respond to changes in geopolitics. This will broaden the number of international partners and increase student diversity, particularly among nations that support green energy. More exchange possibilities will consequently arise. Another aspect is flexibility. As online education becomes increasingly common, the program can offer more modules or distance learning sessions. An increase in cooperation with energy companies would also provide more real projects and internships.

Overall, the program is likely to evolve more to address the new challenges arising from geopolitical changes and their effects on the global energy market. However, need to point out that this will require significant investment, continuous innovation and further collaborations between higher educational institutions, industry and policymakers.

References

- Anhalt University of Applied Sciences (2022). Examination and Study Regulations for the Master's Degree Programme in International Trade. <https://www.hs-anhalt.de/en/study/orientation/degree-programs/detail/international-trade-master-of-business-administration.html> Accessed on 23.06.2024.
- Anhalt University of Applied Sciences. (2022). International Trade - Double Degree - Master - Studien- und Prüfungsordnung 2012 - 2. <https://www.hs-anhalt.de/en/study/orientation/degree-programs/detail/international-trade-master-of-business-administration.html> Accessed on 23.06.2024.
- Anhalt University of Applied Sciences. H2Microgrids@LSA. <https://www.hs-anhalt.de/hochschule-anhalt/fachbereich-wirtschaft/projekte/microgrids.html> Accessed on 01.07.2024.
- Anhalt University of Applied Sciences. Hydrogen Forum 2023. <https://www.hs-anhalt.de/hochschule-anhalt/fachbereich-wirtschaft/aktuell/hydrogen-forum-2023/welcome.html> Accessed on 01.07.2024.
- Anhalt University of Applied Sciences. International Partner universities of Anhalt University. <https://www.hs-anhalt.de/international/studienaustausch-auslandspraktikum-und-semester/partnerhochschulen.html> Accessed on 01.08.2024.
- EEG (2023). We're tripling the speed of the expansion of renewable energies. <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/amendment-of-the-renewables-act-2060448> Accessed on 26.06.2024.
- Energy Barometer (2020). Annual Report. <https://www.energyinst.org/barometer/2020/biggestChallenges> Accessed on 23.06.2024.
- IEA (2020). Korea 2020 energy policy review. https://iea.blob.core.windows.net/assets/90602336-71d1-4ea9-8d4f-efeeb24471f6/Korea_2020_Energy_Policy_Review.pdf Accessed on 27.06.2024.
- IEA (2022). Kazakhstan Energy Sector Review. Accessed on 27.06.2024. <https://iea.blob.core.windows.net/assets/fc84229e-6014-4400-a963-bcea29e0387/Kazakhstan2022.pdf>
- IEA (2023). Azerbaijan Energy Profile. <https://iea.blob.core.windows.net/assets/0528affc-d2ba->

- [49c9-ac25-17fc4e8724f7/AzerbaijanEnergyProfile_2023.pdf](#) Accessed on 27.06.2024.
Ministry of Science, Energy, Climate Action and Environment. Expert opinion: Green hydrogen economy in Saxony-Anhalt could create around 27,000 jobs by 2045. <https://mwu.sachsen-anhalt.de/energie/erneuerbare-energien/wasserstoff/wasserstoffland-sachsen-anhalt#c391237>
- Ministry of Science, Energy, Climate Protection and Environment of the State of Saxony-Anhalt. <https://mwu.sachsen-anhalt.de/energie/erneuerbare-energien/windenergie> Accessed on 23.07.2024.
- Polas, M.R.H., Kabir, A.I., Sohel-Uz-Zaman, A.S.M., Karim, R. & Tabash, M.I. (2022). Blockchain technology as a game changer for green innovation: Green entrepreneurship as a roadmap to green economic sustainability in Peru. *Journal of Open Innovation: Technology, Market and Complexity*, 8(2), 62.
- Umwelt Bundesamt (2024). Indicator: Employment in the renewable energy sector. <https://www.umweltbundesamt.de/daten/umweltindikatoren/indikator-beschaefigte-im-bereich-erneuerbare> Accessed on 25.07.2024.