

### Training Clean Energy Transition Course

Training dates: February 27 - March 3, 2023.

Venue: DKU Hall, 1 floor, 173 Nazarbayev Ave., Almaty, Kazakhstan.

Language: Russian and English (simultaneous translation)

*The Kazakh-German University (DKU) in partnership with the Almaty University of Power Engineering and Telecommunications (AUPET), Satpayev University and the Kazakh British Technical University (KBTU), with support from the U.S. Mission to Kazakhstan developed the Clean Energy Transition course for Kazakhstani universities. A five-day training on the course is held at the Kazakh-German University (DKU) from February 27 - March 3, 2023 to introduce the materials of the developed course.*

*Participants: students, teachers and young researchers/specialists in the field of energy, renewable energy, ecology, sustainable development, urban planning and other relevant programs from universities in Kazakhstan; representatives of environmental and educational NGOs in Kazakhstan.*

#### TRAINING PROGRAM

Day 1 - February 27 (Monday)	
09:30-10:00	Registration of participants
Moderator – Mr. Alexey Kobzev, Head of Green Energy and Climate Change Lab., DKU	
10.00-10.15	Welcoming remarks <ul style="list-style-type: none"> <li>• U.S. Consul General Ms. Caroline Savage, U.S. Consulate General Almaty</li> <li>• Dr. Barbara Janusz-Pawletta, Vice President for International Cooperation and Sustainable Development, DKU</li> </ul>
10.15-10.40	General information about the Clean Energy Transition course. An overview of the course's goal, objectives, program, who the course is for, etc. <ul style="list-style-type: none"> <li>• Prof. Dr. Michael Curtis, Senior Fellow and Adjunct Professor, George Mason University, Schar School of Policy and Government</li> <li>• Prof. Chris Day, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</li> </ul> Introducing lecturers and short overview of the 5-day training program <ul style="list-style-type: none"> <li>• Mr. Alexey Kobzev, Head of Green Energy and Climate Change Lab., DKU</li> </ul>
10.40-11.00	Introduction of participants, adoption of the rules of work during the training (interactive activity) <ul style="list-style-type: none"> <li>• Dr. Alexandr Belyy, DKU</li> </ul>
11.00-11.15	Coffee break
11.15-12.00	Why is it important to discuss energy and development? Key concepts: energy, development, energy poverty, climate change, etc. The energy transition and its significance. <ul style="list-style-type: none"> <li>• Prof. Chris Day, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</li> </ul>
12.00-12.15	Q&A
12.15-13.00	Global energy transition in the world and in Kazakhstan. The relevance of the transition to clean energy in Kazakhstan. Energy transition - the basis for decarbonization of Kazakhstan. <ul style="list-style-type: none"> <li>• Mr. Andriy Mitskan, Chief of Party, USAID Power Central Asia Activity</li> <li>• Ms. Elena Metzger, Deutsche Energie-Agentur GmbH (dena) (TBC)</li> </ul>
13.00-13.10	Q&A
13.10-14.00	Lunch

Moderator – Mr. Alexey Kobzev, Head of Green Energy and Climate Change Lab., DKU	
14.00-14.50	Climate change in Kazakhstan and Central Asia. <ul style="list-style-type: none"> <li>• <i>Dr. Larissa Kogutenko</i>, Head of Water and Climate Lab., DKU</li> </ul>
14.50-15.00	Q&A
15.00-15.10	A brief summary of the lecture part of the first day of the training. Summing up.
15.10-17.20	Satpayev University's experience in green energy, renewable energy, and environmental training through research training <ul style="list-style-type: none"> <li>• <i>Site visit to Satpayev University</i></li> </ul>

Day 2 - February 28 (Tuesday)	
09:30-10:00	Registration of participants
Moderator – Dr. Alexandr Belyy, DKU	
10.00-11.30	<u>Energy, Poverty and Development</u> . The political economy of energy poverty. Energy in the context of countries. Energy, fuel poverty. The energy ladder. Economic growth and pollution. Understanding the political economy of energy poverty. The relationship between energy, poverty, and climate change.  <u>Energy and the environment</u> : Energy and climate change trends. Understanding the links between energy, development, and climate change. Climate policies of major sources of greenhouse gas emissions. Health impacts associated with energy use. <ul style="list-style-type: none"> <li>• <i>Prof. Chris Day</i>, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</li> </ul>
11.30-11.40	Q&A
11.40-11.55	<i>Coffee break</i>
11.55-12.35	Climate Policy of Kazakhstan. Carbon neutrality of cities. The impact of thermal power plants (TPP) on urban pollution in Kazakhstan. Calculation of emissions from TPP by the method of Intergovernmental Panel on Climate Change (IPCC). Calculation of public health risk from TPP emissions. Ways to reduce emissions from TPP. <ul style="list-style-type: none"> <li>• <i>Dr. Gulmira Kezembayeva</i>, Senior Lecturer, Mining and Metallurgical Institute named after O.A. Baikonurov, "Chemical Processes and Industrial Ecology" Department, Satpayev University</li> </ul>
12.35-13.05	Energy/Fuel Poverty in Kazakhstan. Research and case study. <ul style="list-style-type: none"> <li>• <i>Dr. Ayimgul Kerimray</i>, independent ecologist, scholar</li> </ul>
13.05-13.20	Q&A
13.20-14.30	Lunch
14.30-14.45	Wrapping up the second day of the training.
14.45-17.00	Almaty University of Power Engineering and Telecommunications' (AUPET) experience of using renewable energy (RE) in Kazakhstan, integration of RE plant in the energy system, staff training, barriers and ways to solve them. <ul style="list-style-type: none"> <li>• <i>Site visit to AUPET</i></li> </ul>

Day 3 - March 1 (Wednesday)	
09:30-10:00	Registration of participants
Moderator – Mr. Abylaikhan Soltanayev, Head of Education Programs of RE and Hydropower, Almaty University of Power Engineering and Telecommunications (AUPET)	
10.00-10.50	Clean energy technologies. The economics of energy supply. Clean energy technologies: Renewable energy; Energy efficiency (generation, transmission, distribution, buildings, industry). Distributed generation. Digitalization and cybersecurity. A framework for thinking about energy for development. Barriers to clean energy access. <ul style="list-style-type: none"> <li>• <i>Prof. Chris Day, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</i></li> </ul>
10.50-11.00	Q&A
11.00-11.15	Interactive activity with participants: exercise "In the active work stage"
11.15-11.35	<i>Coffee break</i>
11.35-12.50	Technical aspects of the use of renewable energy sources in Kazakhstan. Technical and organizational aspects of hydropower development. <ul style="list-style-type: none"> <li>• <i>Mr. Abylaikhan Soltanayev, Head of Education Programs of RE and Hydropower, Almaty University of Power Engineering and Telecommunications (AUPET)</i></li> </ul>
12.50-13.00	Q&A
13.00-14.00	Lunch
14.00-14.40	Technical and organizational aspects of the development of solar and wind energy <ul style="list-style-type: none"> <li>• <i>Prof. Dr. Nurzhan Beisenkhanov, Dean of the School of Materials Science and Green Technology, Kazakh British Technical University (KBTU)</i></li> </ul>
14.40-14.50	Q&A
14.50-15.30	Alternative energy sources: methane from the agroindustrial complex, biogas from landfills, methane from coal beds. <ul style="list-style-type: none"> <li>• <i>Dr. Gulmira Kezembayeva, Senior Lecturer, Mining and Metallurgical Institute named after O.A. Baikonurov, "Chemical Processes and Industrial Ecology" Department, Satpayev University</i></li> </ul>
15.30-15.40	Q&A
15.40-16.00	<i>Coffee break</i>
16.00-16.40	Green buildings as a contribution to the decarbonization of Kazakhstan's economy <ul style="list-style-type: none"> <li>• <i>Dr. Alexander Belyy, Executive Director, Kazakhstan Green Building Council (KazGBC)</i></li> </ul>
16.40-16.50	Q&A
16.50-17.00	Wrapping up the third day of the training.

Day 4 - March 2 (Thursday)	
09:30-10:00	Registration of participants
Moderator – Dr. Alexandr Belyy, DKU	
10.00-10.50	Policy Options for the Clean Energy Transition: Policy Tools for Expanding Clean Energy Use. Finance and investment. Institutions. An overview of individual country efforts to expand the use of clean energy. Understanding institutional needs and reforms. <ul style="list-style-type: none"> <li>• <i>Prof. Chris Day, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</i></li> </ul>
10.50-11.00	Q&A
11.00-11.40	Financial Measures to Support the Transition to Clean Energy in Kazakhstan: Experience and Future Perspectives <ul style="list-style-type: none"> <li>• <i>Mr. Oleg Khmelev, International Technical Advisor for Joint Projects of the United Nations Development Program, Global Environment Facility and the Government of the Republic of Kazakhstan</i></li> </ul>
11.40-12.00	<i>Coffee break</i>
12.00-12.40	Support for Renewable Energy Development in Kazakhstan: Progress and Current Challenges <ul style="list-style-type: none"> <li>• <i>Mr. Timur Shalabayev, Executive Director, RES Association "Qazaq Green"</i></li> </ul>
12.40-13.00	Q&A
13.00-14.00	Lunch
14.00-14.10	A brief summary of the lecture part of the fourth day of the training. Summing up.
14.10-17.00	Kazakh British Technical University's (KBTU) experience in research & development. <ul style="list-style-type: none"> <li>• <i>Site visit to KBTU</i></li> </ul>

Day 5 - March 3 (Friday)	
09:30-10:00	Registration of participants
Moderator – Mr. Alexey Kobzev, Head of Green Energy and Climate Change Lab., DKU	
10.00-11.00	Case Studies of Selected Country Efforts for Clean Energy Transition: The Challenges for Energy Investment and Financing in Developing and Developed Countries. Studies in India, China, Bangladesh, European countries. <ul style="list-style-type: none"> <li>• <i>Prof. Chris Day, Adjunct Professor, Energy &amp; Environmental Security, George Washington University' Elliott School of International Affairs</i></li> </ul>
11.00-11.10	Q&A
11.10-11.30	<i>Coffee break</i>
11.30-12.30	Capacity building programs on the clean energy transition in Central Asia <ul style="list-style-type: none"> <li>• <i>Mr. Alexey Kobzev, Head of Green Energy and Climate Change Lab., DKU</i></li> </ul>
12.30-12.40	Q&A
12.40-13.00	Interactive activity with participants
13.00-14.00	Lunch
14.00-14.40	Some social and economic aspects of the energy transition <ul style="list-style-type: none"> <li>• <i>Dr. Alexandr Belyy, DKU</i></li> </ul>

14.40-14.50	Q&A
14.50-15.10	Interactive activity with participants: an exercise on perception of the training
15.10-15.25	<i>Coffee break</i>
15.35-16.25	<p>Professionalisation of the refurbishment process of buildings. Motivating and qualifying homeowners for the energetic refurbishment of multi-family houses.</p> <ul style="list-style-type: none"> <li>• <i>Ms. Larissa Schreckenbach</i>, Housing Initiative for Eastern Europe (IWO), Berlin, Germany</li> </ul>
16.25-16.35	<p>Q&amp;A</p> <p>Closing remarks from <i>Prof. Dr. Michael Curtis</i>, Senior Fellow and Adjunct Professor, George Mason University, Schar School of Policy and Government</p>
16.35-17.00	<p><i>Summing up the results of the training.</i></p> <p><i>Filling out the post-training survey.</i></p> <p><i>Awarding certificates to the participants of the training</i></p>