

## U.S.-Pakistan Center for Advanced Studies in Energy, NUST

### Seminars /Guest Lectures in 2017-2018:

Event	Location	Tentatively Time Line
1 day Seminar on Energy Economics and Modeling	USPCAS-E	Tentatively on 3rd week of June-2018
1 day Seminar on Renewable Energy and Energy Materials	USPCAS-E	Tentatively 1st week of July-2018

### Workshops planned in 2018:

Workshop on Electrical Power Systems jointly with ASU	Will be lead by ASU	USPCAS-E, CR	April-2018	Date will be finalized by ASU
Workshop on Thermal Energy jointly with ASU	Will be lead by ASU	USPCAS-E, CR	June-2018	Date will be finalized by ASU

### USPCAS-E NUST First Convocation

1	USPCAS-E 1st Convocation	Convocation PG	Jinnah Auditorium, CIPS, NUST	Convocation
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### Research & Development Projects and Performance of USPCAS-E NUST

Sr #	Project Title	Name of PI	Date of approval	Funding Agency	Duration	Deliverables	Cost of Project	Present Status
1	Biofuel Research	Dr. Mohammad Bilal Khan	2013	NRG Biofuels Canada	2 Years	To collaborate on the development of eco-sustainable biofuels and energy related technologies.	PKR 34.4 M	Completed
2	Biofuel Plant	Dr. Mohammad Bilal Khan	2013	Askari Cement	4 Month	Installation and commissioning of Biofuel Plant	PKR 1.6M	Completed
3	Installation and commissioning of Metrological High Precision Station	Dr. Mohammad Bilal Khan	2013	World Bank	4 Months	Installation and commissioning of Metrological High Precision Station	PKR 10 M	Completed
4	Installation and commissioning of CTL Unit	Dr. Mohammad Bilal Khan	2013	FFCL	6 Months	Procurement, Installation and commissioning of CTL Unit	PKR 6.0 M	Completed

5	Enhanced Hydrogen production from Algae using artificial electron donors and inhibiting agents for Ferredoxin NADP reductase.	Dr Rabia Liaquat	15 <sup>th</sup> , June 2014	NRPU, HEC	2 Years	Enhanced Hydrogen production from Algae by encountering biological regulatory mechanisms.	PKR 6.2M	In Progress
6	Capacity Building & Strengthening of BGT Technologies	Dr. Muhammad Zubair	22 December, 2014	UNIDO	2 Years	Assessment of capacity market players in biomass gasification technologies. Tracking methods, training on biomass gasification technologies products/services of consultants and industry experts. Establishment of technical cooperation between local and international institutions	PKR 38M	Final report in process
7	Development of Environmentally tolerant materials and coating for Gas turbines for electric power generation and vehicular propulsion	Dr. Zuhair Khan	29 December, 2014	HEC	2 Years	Development of environmentally tolerant materials and coatings via thermal spray technology and solutions/slurry methods for safeguarding the super alloys and ceramic matrix composites for gas turbines engines and industrial machines working at high temperatures	PKR 14.18 M	In progress
8	Renewable Energy Resource Mapping. Biomass (Phase 1-3) Pakistan.	Dr. Muhammad Bilal Khan	30 March, 2015	Full Advantage Co, Thailand	5 Months	Comprehensive field survey database necessary for biomass resource mapping	PKR 25.62 M	Completed
9	Industrial Grade Multi-	Dr. Raza Kazmi	16 Feb, 2016	HEC	2 Years	Design of motor efficiency	PKR 5.6M	In progress

	Purpose Test Bed for Electric Machine Characterization and Control Development Project					characterization system under international standards like NEMA and IEC. The same platform will be used to develop energy efficient control system.		
10	Smart Solar Hybrid UPS with Maximum Power Point Tracking, efficient battery charging and voltage regulation Grant.	Dr. Raza Kazmi	20 June, 2016	HEC	2 Years	Novel uninterruptible power supply for smart integration of solar power in the home grid with true MPPT under partial shading, efficient battery charging and output voltage regulation with low harmonics	PKR 5.9M	In progress
11	Valorization of biomass residues for biomethane production through Anaerobic digestion: Green Technology	Dr. Rabia Liaquat	9 June, 2016	USAID & FFCL	1 Year	65-68% Biomethane production & designing of Pilot plant	PKR 4.0M (75% USPCA S-E, 25% FFCL)	In progress
12	Liquid fuel production from Coal/Biomass derived Syngas	Dr. Naeem Iqbal	7 June, 2016	USAID	1 Year	Demonstration of Liquid fuel production from Syn gas using indigenous Catalyst.	PKR 3.0M	In progress
13	Design and Development of Condition Monitoring Test Bed based Smart Solar Micro Grid – Community Empowerment through Access to Energy in the Rural Areas of Pakistan	Dr. Raza Kazmi	April, 2017	USAID	1 Year	To design the enabling technologies for smart micro grid particularly suited for Pakistan.	PKR 9.0M (NUST) USD 30,000-60,000 (ASU)	In progress
14	Development of Hybrid Micro Combined Heat and Power System	Dr. Muhammad Zubair	April, 2017	USAID	1 Year	To develop a hybrid Solar Thermal and Biomass based micro-combined heat and power	PKR 9.0M (NUST) USD 30,000-	In progress

	for Distributed Generation 12in Pakistan					system to provide power to off grid rural areas.	60,000 (ASU)	
15	Towards Emerging Perovskite and Sold State Dye-Sensitized Solar Cells	Dr. Nadia Shahzad	August 31,2017	HEC		Towards Emerging Perovskite and Sold State Dye-Sensitized Solar Cells	PKR 14.47 M	In progress
16	Methane enhancement by pretreatment of rice husk co-digested with cow manure	Dr. Muhammad Hassan	November 7, 2017	SRGP-HEC	9 Months	Methane enhancement by pretreatment of rice husk co-digested with cow manure	PKR 0.4M	In progress
17	An advanced Rotor for H-Darrieus typed vertical Axis Wind Turbine	Dr. Adeel Javed		USAID	1 Year	An advanced Rotor for H-Darrieus typed vertical Axis Wind Turbine	PKR 3 M	In progress
18	Autonomous 11kV distribution line fault localization system	Dr. Khawaja Arsalan		USAID	1 Year	Autonomous 11kV distribution line fault localization system	PKR 3 M	In progress
19	Design and Fabrication of a small wind turbine for operation in low wind speed regions	Dr. Adeel Javed		PSF-MSRT	2 Year	Design and Fabrication of a small wind turbine for operation in low wind speed regions	PKR .54 M	In progress
20	Developing the strategy for policy oriented energy research modeling at USPCAS NUST	Dr. Kafait Ullah	September 26, 2017	USAID	1 Year	Developing the strategy for policy oriented energy research modeling at USPCAS NUST	PKR 8.8M (NUST) USD 28,000-60,000 (ASU)	In progress
21	Novel Materials for Sodium-ion Batteries and proton Exchange membrane Fuel Cells.	Dr. Naseem Iqbal	September 19, 2017	PSF		Novel Materials for Sodium-ion Batteries and proton Exchange membrane Fuel Cells.	PKR 4 M	In progress