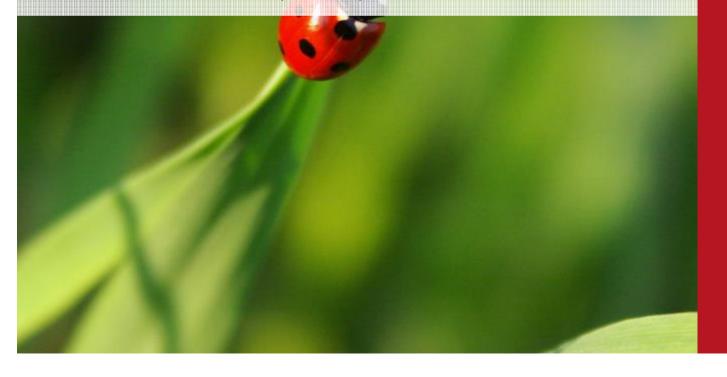


CapREG - Capacity Development on Renewable Energy and Grid Integration

Objectives, partner countries, seminars, costs and schedule

Albrecht Tiedemann (RENAC)



Agenda



- About Renewables Academy (RENAC) AG
- Information about CapREG
- Target groups and partner countries
- Project specific objectives
- Marketing and definition of training needs
- Seminars in partner countries and in Berlin
- Web-based trainings
- Mobile exhibition
- Time schedule
- Costs and fees
- Contact information

RENAC is....



- a Berlin-based training specialist for Renewable Energy and Energy Efficiency
- Private sector company with 22 employees
- Until now we operate with participants from over 110 countries
- We offer Renewable Energy (RE) and Energy Efficiency (EE)
 - Short-term trainings
 - Academic education
- We support third parties to build up own capacities for EE and RE training (Capacity Building Services)









RENAC — training activities in Berlin and worldwide



RENAC – selection of references













Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

















































RENAC – trainings, education programs and services

Training Courses

- Open Training
- Tailor-made T.
- Online Training





Master's Degrees

- MBA Renewables
- GPE Solar





Capacity Building Services

- Development of Curricula
- Turnkey Training Centers
- Train-the-Trainer Programs
- Capacity Assessment
- Quality Assurance

Consulting

- Advisory Services
- Delegation Programs
- Conference Programs

CapREG – Capacity Development on Renewable Energy and Grid Integration



- CapREG is a seminar scholarship program
- Financed by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) with funds from the International Climate Initiative (IKI)



- Mexico, Ecuador, Peru
- Philippines, Indonesia, Vietnam and Thailand
- Seminar activities:
 - Face-to-face trainings in both partner countries and Berlin
 - Web-based training (online seminars)
- Training topics: technologies, political frameworks, financing conditions, grid integration of renewables, project tendering and evaluation







CapREG – target groups for seminars



- The target groups are professionals working in Mexico, Ecuador, Peru, Thailand, Philippines, Indonesia and Vietnam in
 - ministries with responsibilities for energy supply / power networks
 - Ministries recognising the importance of climate protection / policy and / or with responsibility for energy policy
 - subordinate authorities and regulators, regional or local administration
 - energy generators, transmission and distribution system operators
 - financial sector
 - industry, trade associations, NGOs and
 - media.







CapREG – project specific objectives



- Offer know-how through capacity building, exchange of experiences and networking
- Assisting partner countries in increasing the use of renewable energy technologies
- Creating suitable frameworks for the development of renewable energy at federal and local level
- Overcome obstacles about the grid integration of renewable energy
- Building up new working sectors to strengthen the economy and the employment
- Reduce greenhouse gas emissions
- Contribute to energy security / diversity
- Encourage the financing sector to finance renewables







CapREG – seminar activities overview



- Identification of training needs and topics
- Marketing activities and public relations
- Communication with seminar specific target groups
- Application and selection process
- Web-based trainings and blended learning
- 3-day and 5-day trainings in partner countries
- 5-days trainings in Berlin (attended by participants from different countries)







CapREG – possible seminar topics



- Wind energy, photovoltaics, bioenergy, hydropower, concentrated solar power (CSP), solar thermal
- Application of and yield forecasts for various technologies
- Issues of grid integration of large amount of grid connected wind and solar
- Stand-alone and hybrid systems
- Costs, profitability, cash flow analysis, risk analysis, due diligence, financing
- Environment, legal aspects, support mechanisms, inclusion of social and environmental aspects
- Tender, approval process, power projects agreements, project contracts
- Qualification requirements, development of capacity building structures





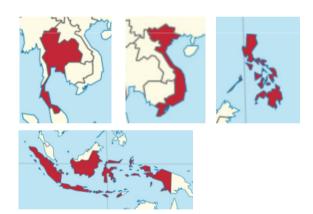




CapREG – marketing and definition of training needs

- Marketing in English and Spanish (RENAC website, mailings, printed flyer, information for press)
- Definition of training needs
 - Interviews and meetings in partner countries:
 - → Travel to MEX-ECU-PER

→ Travel to THA-PHL-IDN-VNM



- Receptions with German institutions (GIZ, KfW, AHK, embassy) on site to inform about the project and to assist with the marketing
- Evaluation of information and definition of training needs

CapREG – definition of training needs



- Major questions:
 - What are the main policy issues and obstacles regarding the development of renewables in the partner countries?
 - Which institutions are responsible and who is involved?
 - Which learning objectives could support the national development of renewables?
 - Which specific target groups should have priority for the CapREG-trainings?
- RENAC will evaluate the answers and propose a seminar plan for each partner country
 - 3 x three-day seminars
 - 1 x five-day seminars
 - Web-based trainings
- Agreement on objectives and content of seminars (faceto-face and web-based trainings)











- Participants are invited to
 - apply online for the scholarships (application link is not active up to now)
 - attend the trainings and pass the tests
 - exchange findings with other students
- RENAC's tasks are to
 - develop curricula and teaching material for 9 online seminars in English and Spanish (text, videos, animations, questions for self testing)
 - select and invite participants
 - organise web based-trainings, virtual classrooms and a forum
 - support online-students
 - organise a final test and distribute certificates



Welcome to RENAC's e-learning platform!

Study renewables - at any place at any time!

RENAC's online training is ideal for those who want to learn independently and at their own pace. Our online courses allow you to learn at your own convenience. E-learning offers you the chance to access and participate in the various courses we offer through the comfort of your computer. Our range of e-learning offers will include online courses, live webinars, post-graduate courses, e-testing, etc.

For our current offers please visit http://www.renac.de/en/e-learning/



CapREG – mobile exhibition on grid integration of wind and solar in English and in Spanish



- The mobile exhibition on grid integration of renewables will consist of 15 information boards (85cm x 220cm) / A0posters
- Each board will be available in English and in Spanish
- One copy of the exhibition will be printed for each partner country
- Interested institutions willing to host the exhibition in the partner countries will be responsible
 - for choosing suitable events to show the exhibition
 - for organising guided tours through the exhibition \(\frac{1}{2} \)
 - (partner institutions will own the exhibition after the end of the project)



1 Introduction

2 What is a grid?

Fhe Grid

3 Balancing power

4 Power stations and balancing power

5 Concentrated Solar Power (CSP)

6 Photovoltaic (PV)

7 Wind energy

8 Renewable and conventional power stations

9 Flexible conventional power stations

10 Energy storage technologies

Source: RENAC

11 Forecasting wind & solar power

12 Power forecasts errors

and Planning

Forecasting

13 Planning of power systems with RE I

14 Planning of power systems with RE II

15 Summary





	2014		2015	2016
Capacity needs assessment				
7 x five-day seminars (in partner countries, English, each with 15 participants)		2	5	
21 x three-day seminars (in partner countries, English, each with 15 participants)		7	7	7
7 x five-day seminars (in Berlin, English, each with 12 part. from different countries)			3	4
9 web-based trainings (English/Spanish, 270 days, in total up to 525 participants)				
Mobile exhibition (15 boards for each partner country, English or Spanish)				
Information and marketing				

CapREG – costs and fees



- CapREG is a scholarship program that provides
 - free participation in a face-to-face and online trainings
 - materials, lunch, tea & coffee, field trips during seminars
 - travel health insurance if travelling to Berlin
 - letter of invitation for travel visa
- Costs covered by participants:
 - participants are responsible for booking and paying hotel and flights
 - costs for hotel and flight ticket for seminars in Berlin are shared
 - RENAC will reward 60% of an economy flight to/from Berlin (max. 660€ for IDN-PHL-VNM-THA and max. 780€ for MEX-PER-ECU) and 60% of hotel costs in Berlin (max. 45€/ night and up to 7 nights).
 - Participants will cover at least 40% of hotel and ticket costs.
 - breakfast, dinner, personal activities, visa fees and other expenditures
- Participants are responsible for their visa application procedure





CapREG – Project Manger Albrecht Tiedemann



- Since 2009: Director and Lecturer at Renewables Academy (RENAC) AG; topics are training programs on grid integration of renewable energy and on wind energy
- 2003 2009: Project Manager at the German Energy Agency; topics were grid integration of renewable energy and wind energy
- 1989 2003: Scientific Assistant at the German Federal Environmental Agency; topics were offshore wind energy, offshore gas/oil exploration and pulp and paper industry
- 1989: Technical University Berlin; Engineer in Environmental Protection Technology



CapREG – contact information



Renewables Academy – RENAC AG

Schönhauser Allee 10-11

10119 Berlin

www.renac.de

Albrecht Tiedemann, Director Wind Power & Grid Integration of Renewables

Tel: +49(0)30-5268958 - 80

Fax: +49(0)30-5268958 - 99

E-Mail: tiedemann@renac.de

Berthold Breid, CEO

Tel: +49(0)30-5268958 – 70

Fax: +49(0)30-5268958 - 99

E-Mail: breid@renac.de

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Thank you!