



# GeoFund



for Financing Geothermal  
Development in 2009 for  
ECA Region

**World Bank & IFC**  
in association with:



## **GeoFund - IGA Geothermal Workshop**

∞ **Draft Agenda** ∞

**February 16-19, 2009**



**Monday, February 16**

## **Day 1: Opening the International Workshop “TURKEY 2009”**

The opening session will review current works, and will describe new developments in Geothermal Energy. Presenters will discuss how to further develop the ECA geothermal industry by working with government officials and the private sector in developing projects in their country.

**13:00 – 18:00 Check-in, registration, and Reception**

**13:00 – 18:00 Networking - Exhibitor Kiosks – Exhibition Hall – Best Practices**

∞ **Day 1 Convener: IGA President, Prof. Ladislaus Rybach** ∞

### **Opening Reception – GeoFund**

16:30 – 16:40 Workshop Commencement - comments by the IGA President

16:40 – 17:20 International Workshop Cocktail Reception and Opening Remarks:

- Representative of Turkish government (TBA)

- President of TGA Mr. Orhan Mertoglu

- Chairman of the IGA Education Committee Prof. Horst Rueter

17:20 – 18:00 World Bank GeoFund's Goals - Dr. Helmut Schreiber

**This opening cocktail reception is specially designed for high-level government officials & industry specialist as workshop participants. It will summarize overall goals of the workshop and those of the GeoFund in three tranches:**

#### ***1) Technical Assistance Tranche:***

Overview of the Geothermal Workshop. The goal is to present attendees with the successes of geothermal energy, how to develop a project, how to secure from the GeoFund loans and grants to mitigate risks of exploration and drilling, and how to secure financing from the IFC and international financiers to develop geothermal projects in their countries.

#### ***2) Direct Investment Funding Tranche:***

GeoFund, via the World Bank, will support selected project developers by providing low cost loans, contingent grants and outright grants which would cover part of the project cost through monetization of external benefits. Via the IFC, the GeoFund will help improve the performance of existing geothermal facilities through renovation of existing facilities, and will help support bankable business plans for Greenfield facilities where the resources are promising.

#### ***3) Geological Risk Insurance Tranche:***

GeoFund will partially insure project developers/investors against the short-term and medium-term geological risks. This insurance will help to mitigate the risks associated with geothermal energy exploration and operation that is considered as one of the key barriers to geothermal energy investments.

### **Geothermal Gala Dinner**

18.00 - 10.00 Keynote Speaker– Dr. Hilmi Güler, Minister of Energy and Natural Resources, Turkey (TBC)

TBC = To Be Confirmed

TBA = To Be Announced

TBD = To Be Determined

**Tuesday, February 17**

## **Day 2: How to Start a Geothermal Project – Regulatory Issues, Technologies, Barriers and Successful Case Studies**

The current and future roles played by geothermal technologies will be explored. Presenters will cover the major barriers to geothermal development and how to overcome these barriers. We will also explore the current and future role played by geothermal technologies globally, answering these questions and more: What is the realistic development potential from 2008 to 2050? What are the global market and policy drivers? The presenters will review policies concerning energy demand and use and amendments to legislation favorable to geothermal energy.

**08:00 – 09:00 Continental Breakfast - Best Practices - Kiosks Exhibitor Hall**

∞ **Day 2 Convener: Prof. Kiril Popovski** ∞

### **Geothermal Development in the ECA Regions**

09:00 – 09:15 Summary of Exploration and Development of Geothermal Resources in ECA Region Countries – Prof. Kiril .Popovski

### **Geothermal Exploration and Development**

09:15 – 09:45 Development of Geothermal Projects – Exploration and Development – Dr. Ruggero Bertani, IGA former President

09:45 – 10:15 Turkish Privatization of Geothermal Sites – TBC, General Directorate - Ministry of Energy and Natural Resources

10:15 – 10:30 Questions and Discussion

**10:30 – 11:00 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

### **Geothermal Power Production Projects**

11:00 – 11:20 Development of Power Production Projects – Gad Shoshan, Ormat

11:20 – 11:40 Binary Power Project – Mike Hayter, Raiser Technologies (TBC)

11:40 – 12:00 Questions and Discussion

**12:00 – 14:00 Luncheon – (Keynote - Robert Hegger, UTC Power, Silver Sponsor – TBC)**

**12:00 – 14:00 Networking - Exhibitor Kiosks Room**

### **Geothermal Direct Application Projects**

14:00 – 14:35 Development of Direct Application Projects – Prof. John Lund (IGA)

14:35 – 14.45 Questions and Discussion

**14:45 – 15:15 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

### **Geothermal Direct Application Projects & Heat Pumps (GHP)**

15:15 – 15:50 Development of GHP – Dr. Burkhard Sanner (IGA)

15:50 – 16:00 Questions and Discussion

### **Geothermal Technologies**

16:00 – 16:15 Development of Power Production Projects in Turkey with Germencik (Guris), Kevin Wallace - Power Engineers

16:15 – 16:30 Development of EGS – Charles Baron, Google.org (TBC)

16:30 – 16:45 Develop of Direct Applications & Heat Pumps - TBA

16:45 – 17:00 Questions and Discussion

**17.00 – 20.30 Networking - Best Practices - Kiosks Exhibitor Hall**

**Wednesday, February 18**

## **Day 3: Geothermal Energy Demand and Securing Financing**

### **(Plenary Session)**

The session will explore the operating economics of geothermal technologies, and will describe the issues faced by project developers and financiers. Lecturers will give an overview of how to secure international financial assistance and grants. Attendees will learn how to implement a Geothermal Project, and will also learn how to write winning proposals.

**08.00 – 09.00 Continental Breakfast - Best Practices - Kiosks Exhibitor Hall**  
∞ **Day 3 Convener: Dr. Helmut Schreiber (TBC)** ∞

#### **Regulatory Aspects to Geothermal Financing**

09:00 – 09:25 Regulatory aspects to attract investors – Prof. Ladislaus Rybach, IGA  
09:25 – 09:45 IFC and Private Sector Financing Geothermal Project Development – Alexios Pantelias, IFC  
09:45 – 10:00 Questions and Discussion

**10:00 – 10:30 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

#### **World Bank GeoFund and other Financing**

10.30 – 10.50 Opening Remarks: An Acceleration of the GeoFund Program to provide increased Access and enhanced Opportunities for Project Support – Dr. Helmut Schreiber, World Bank  
10:50 – 11:10 Overview on writing successful proposals to obtain GeoFund support in order to initiate geothermal development in a country - Heike Lingertat, WB  
11.10 – 11.30 Project preparation prior to Receipt of Funding – WB representative  
11.30 – 11.50 Contracting, Project Monitoring and Criteria for Payments under Contingent Grants and Technical Assistance, World Bank Representative  
11:45 – 12:00 Questions and Discussion

**12:00 – 14:00 Luncheon – Keynote - John McIlveen. Jacob & Company Securities, Silver Sponsor – TBC**

**12:00 – 14:00 Networking - Best Practices Kiosks Exhibitor Hall**

#### **Geothermal Data, Economic & Financial Models Required to Secure Project Financing**

14:00 – 14:30 Data need for project development - TBC, General Directorate - Ministry of Energy and Natural Resources  
14:30 – 14:50 Economic & Financial modeling needed to secure funding for geothermal projects, Prof. Gordon Bloomquist, IGA  
14.50– 15:00 Questions and Discussion

**15:00 – 15:30 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

#### **Open Discussions with World Bank Invited Investors, Insurance Companies and Banks.**

15:30 – 15:45 Participants will be asked to submit questions to be presented and answered in an open discussion.  
15:45 – 16.45 Reading of Questions - Dr. Helmut Schreiber, World Bank  
16:45 – 17:00 Informal Discussions

## Day 3: Course on Economic Evaluation and Modeling

### (Parallel Session)

The short course on economic modeling of geothermal projects will introduce project developers to the possibilities and benefits of modern methodologies for evaluation of projects to be financed by the GeoFund. Participants will follow the full process of modeling a concrete project until getting the successful combination of natural pre-conditions and main economic drivers.

∞ **Course Convener: Dr. Gordon Bloomquist** ∞

- 09.00 - 09.15 Opening the course  
09.15 - 09.40 Economic criteria – Introduction  
09.40 - 10.00 Economic criteria – Geothermal power production

#### **10:00 – 10:30 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

- 10.00-10.30 Economic criteria – Direct application projects  
10.30-11.00 Economic criteria – Combined power/heat production project  
11.00-12.00 Financial Modeling Considerations - Introduction
- Financial objectives (cash flow, return on equity, etc)
  - Constraints, boundary conditions – analysis period,
  - Ownership – public/private, equity investors, etc
  - Funding (debt/equity/grants mix)
  - Fixed and variable costs – fuels, labor, services, materials, etc
  - Cost escalation
  - Taxation (sales, franchise fees, income, etc)

#### **12:00 – 14:00 Luncheon – Keynote - John McIlveen. Jacob & Company Securities, Silver Sponsor – TBC**

#### **12:00 – 14:00 Networking - Best Practices Kiosks Exhibitor Hall**

- 14.00-15.00 Special software application – Presentation of REELCOST software

#### **15:00 – 15:30 Coffee Break and Networking - Best Practices Kiosks Exhibitor Hall**

- 15:30 – 16:30 Modeling examples
- Example for geothermal power production project
  - Example for geothermal direct use project (Turkey)
  - Example of district heating drawing info from a HEATMAP analysis.
- 16.30-17.00 Discussion

NOTE: For each of the examples, separate modeling scenarios (3 to 5 case histories for each) would be done to illustrate key economic analysis capabilities for concrete case studies:

- ✓ Capitalization (impact of funding sources/mix)
- ✓ Emission credits (impact on project viability)
- ✓ Break-even pricing (electric sales price needed to meet financial criteria).

A written Guideline for project preparation and implementation shall be supplied to the course participants.

**17.30 – 18.00 Closing the Workshop.**

- President of TGA Mr. Ladislaus Rybach
- Chairman of the IGA Education Committee Prof. Horst Rueter

**20.00 - 22.30 Networking - Best Practices - Kiosks Exhibitor Hall**

**Thursday, February 19**

**Day 4: Field Trip to Geothermal Site (optional) (TBC)**

This session will provide a panel focusing on country specific aspects of Geothermal Energy and building effective government-industry collaboration. This will include visiting a geothermal site.

- 09.00** Departure to the GHP project in Istanbul
- 10.00 - 12.00** Presentation of the project, visit to the project site, questions, discussion
- 12.00 - 13.30** Travel to Bursa
- 13.30 - 14.30** Lunch break
- 14.30 - 16.30** Visit to the geothermal field in Bursa
- 16.30 - 17.30** Coffee break with discussion
- 17.30 - 19.00** Travel to Istanbul

