



IGC

Türkiye
2017

International Geothermal Conference in Turkey

22-24 May 2017, İzmir/Turkey

Co-host:



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



Organizers:

ENERCHANGE
agentur für erneuerbare energien

THINK GEOENERGY

JEOTERMAL HABERLER

GW-Sponsor:

DOĞAN JEOTERMAL
GROUP

Congress Overview

22 May 2017

13:30 – 15:30

World Bank Geothermal Workshop

Part I



13:30 – 15:30

Technical Workshop: Drilling for Geothermal Energy – Challenges & Innovation

Part I

16:00 – 18:00

World Bank Geothermal Workshop

Part II



16:00 – 18:00

Technical Workshop: Producing Geothermal Water

Part II

19:00 Exergy Lounge  **EXERGY**

23 May 2017

9:00 -18:00 Congress

20:00 Executive Dinner (by invitation only)

24 May 2017

8:00 - 17:30

Exergy Field Trip

Bus departure in the back of the Swissotel Büyük Efes, Izmir

GW-Sponsor:



The congress in the heart of the geothermal industry in Turkey.

2nd IGC Türkiye 2017 – international geothermal congress for Turkey

22-24 May 2017 – Izmir, Turkey

Turkey's geothermal sector has outpaced international geothermal development with more than 800 MW developed in the past 8 years and has seen strong interest by both national and international players, all from developers, service providers, suppliers, as well as financial institutions.

The congress is set up to provide a forum for Turkish and international players in the sector and those interested to engage in exploring opportunities for involvement. With synchronous translation Turkish-to-English and English-to-Turkish, the congress is accessible to both Turkish and international participants.



Foreword by the World Bank



The World Bank Energy and Extractives Global Practice and the Energy Sector Management Assistance Program (ESMAP) are proud to co-host the second International Geothermal Conference (IGC) Turkey, in Izmir, with Enerchange, ThinkGeoEnergy and Jeotermal Haberler. This event presents an excellent opportunity to reflect on the partnership between Turkey and the World Bank for the development of geothermal energy and also to showcase the recently-approved World Bank-financed Turkey Geothermal Development Project (TGDP).

Maximizing the exploitation of domestic primary energy resources and securing reliable and affordable energy to a growing economy in an environmentally-sustainable manner is a core energy policy priority of the Government of Turkey. The Government's target is to increase the share of electricity generated from renewable energy to 30 percent of the total 100 GW of installed power generation by 2023 (including wind, hydro, solar, and geothermal). Of the 30 GW from renewable energy resources, the target share for geothermal is 1 GW, to be installed by 2023. With a current installed capacity at 858 MW, and projects totaling a few hundred MWs under construction, it seems likely that this goal will be reached well before the target date.

Several factors contributed to the unprecedented growth of the geothermal sector in Turkey in the last decade. Two key factors were (i) the public derisking

of geothermal fields through exploration drilling and (ii) access to financing from international finance institutions, including the World Bank. In order to ensure continuation of the growth of this vibrant sector, it is critical to ensure that these two pillars remain in place. With this in mind, the TGDP was designed to provide geothermal developers in Turkey with access to risk coverage at the exploration drilling stage as well as with commercial financing for capacity drilling and power plant construction.

At the IGC Turkey, a World Bank Geothermal Workshop on May 22 will be dedicated to the TGDP. At that event our partners, TKB and TSKB, will present the two components of the TGDP, i.e. the Risk Sharing Mechanism for Resource Confirmation and the Loan Facility for Resource Development. The workshop will also include training sessions by World Bank specialists on environmental and social safeguards and how to address greenhouse gas emissions from geothermal projects supported under the TGDP.

The TGDP will be formally launched at the Financing Forum on May 23.

We are very much looking forward to productive and insightful discussions with all of you.

Johannes Zut
Country Director Turkey, World Bank

13:00 Registration

Part I

World Bank Geothermal Workshop



13:30

Welcome remarks

by Chairman Thrainn Fridriksson, World Bank

Geothermal Development Project:
Risk Mitigation Mechanism

Ruken Öztekin, TKB

Geothermal Development Project: Presentati-
on on Loan Facility for Resource Development

Bahadır Kocaker, TKSB

Training session on managing environmental
and social impacts and greenhouse gas emis-
sions of geothermal projects, including case
study, Q and A and discussion.

Esra Arıkan, Arzu Uraz

Thrainn Fridriksson, World Bank

Part I

Technical Workshop

Drilling for Geothermal Energy -
Challenges & Innovations

13:30

Welcome remarks

by Chairman Eren Günüş, JeotermalHaberler

Innovations for Integration Drilling and
Reservoir Services in Geothermal in Turkey

Tevfik Kaya, Schlumberger

Dry Location at Geothermal Drilling

Bahri Çağdaş Atabey, Bordrill

Cementing at high temperature

Benhur Şahin, Pars Anatolian Drilling Solutions

Directional Drilling Solutions for Geothermal
Market

Özgür Kara, Exodus Drilling

15:30 - 16:00 Coffee Break

Part II

The World Bank Geothermal Workshop

**16:00 – 18:00**

Training session on managing environmental and social impacts and greenhouse gas emissions of geothermal projects, including case study, Q and A and discussion.

Esra Arikan, Arzu Uraz

Thrainn Fridriksson, World Bank

Part II

Technical Workshop

Producing Geothermal Water**16:00 – 18:00**

Welcome remarks

by Chairman Tevfik Kaya, Schlumberger

ESP Design Fundamentals and Horizontal Surface Pump

Efkan F. Elmas, Baker Hughes

Prevention of degassing by successful Line Shaft Pump operation in highly mineralized and CO2 rich brines – experiences from Western Europe

Dr. Julia Scheiber, Dr. Jörg Baumgärtner

Thomas Hettkamp, Dr. Marion Schindler, Bestec GmbH

Jack Frost, Ricardo Paredes, FROST Consulting Group

ESP technologies for low pressure shallow and deep wells in Turkey

Ali Cenk Kahya, Schlumberger

Hydrodynamic aspects of pump selection for geothermal power plants

Prof. Dr. Erkan Ayder, İTÜ Makina Fakültesi/TÜRBOSAN A.Ş

19:00  EXERGY Lounge in the Secret Garden of Swissôtel

Open for speakers, sponsors and participants of the Congress and Technical Workshops. For questions please address the info desk.

8:00 Registration

9:00 Welcome by the Organizers

Eren Günüş, JeotermalHaberler

Welcome Address

Alexander Richter, President of the International Geothermal Association

Ufuk Şentürk, President of JESDER

Yaşar Bahçeci, President of JKBB

Mehmet Ali Doğan, Chairman of the board of JEVAK

International experience and challenges specific to Turkey

Thrainn Fridriksson, World Bank

Update on renewable energy

Isaac Angel, Ormat Technologies

EBRD Geothermal Experience: From MidSEFF to PLUTO. Financing over 35 % of the total installed capacity in Turkey

Deniz Yurtsever, EBRD

10:30 Coffee Break

11:00 – 12:45

Forum I

Economy and efficiency of geothermal projects: Proposed and true production

Forum II

Heat Utilisation in Municipalities

12:45 Lunch

14:00 – 15:45

Forum III

World Bank Financing Forum

Forum IV

Well Testing and Interpretation

15:45 Coffee Break

16:15 – 18:00

Forum V

CO2 Considerations

Forum VI

Exploration for Geothermal Reservoirs

20:00 Executive Dinner (by invitation only)

23 May 2017

11:00 – 12:45

Forum I
Economy and efficiency of geothermal projects: Proposed and true production

Chair: Dr. Hartwig Schröder, enpros consulting

Performance Increase in Geothermal Power Plants

Çiğır Diner, Adnan Menderes University / Egesim & Atlas Copco

Turboden local operations in Turkey

Simone Passera, Turboden S.p.A.

Ramya Ramesh, TDPS Europe

Plant and Resource Management

Gad Shoshan, Ormat Technologies

Exergys' proven innovation for major plant efficiency and profitability

Luca Xodo, Exergy SpA

23 May 2017

11:00 – 12:45

Forum II
Heat Utilisation in Municipalities

Chair: Yaşar Bahçeci, JKBB

Jeotermal Kaynaklı Belediyeler

Yaşar Bahçeci, JKBB / Kırşehir Belediye Başkanı

Balçova Geothermal District Heating System - 20 Years of Experience

Prof. Dr. Mahmut Parlaktuna, METU

Jeotermal Enerjinin Bölgesel Isıtma ve ORC ile Elektrik Üretiminde Uygulamaları

Yusuf Ulutürk, AFJET Afyon Jeotermal

District heating and cooling in Pullach, Germany

Alexander Seitz-Gutmann, IEP Pullach

Integrated Geothermal Energy Applications and Models of Investment Financing

Tolgay Benderli, Dogan Geothermal Group

12:45 - 14:00 Lunch Break

23 May 2017

14:00 – 15:45

Forum III World Bank Financing Forum

Chair: Tamara Sulukhia, World Bank

World Bank Turkey Geothermal Development Project

Sameer Shukla, World Bank

Financing of geothermal projects: experiences, main challenges and lessons learnt

Aysel Göçmen, TKB

Aytuğ Öztürk, TSKB

Financing needs of geothermal developers in Turkey

Ufuk Şentürk, JESDER

Risk Mitigation for Geothermal Wells

Sören Reith, EnBW Energie Baden-Württemberg

Examples of different financing schemes of various geothermal projects.

Dr.-Ing. Sven Hartmann, KfW Development Bank

23 May 2017

14:00 – 15:45

Forum IV Well Testing and Interpretation

Chair: Dr. Füsün S. Tut Haklıdır, Bilgi University

Processes after Reservoir Exploitation and Implications on the Geothermal Fluid Composition

Dr. Jochen Schneider, Hydrosion

Well completion tests and Geochemistry Studies

Raziye Şengün, Zorlu Energy Group

Coil Tubing Operation Technology for Geothermal Well Better Performance in Carbonate Reservoirs

Ivan Chikunov, Schlumberger

Importance of well testing on power plant selection

Umut Barış Ülgen, Sis Enerji

Matching the Power Plant With the Geothermal Resource

Dany Batscha, Ormat Technologies

15:45 - 16:15 Coffee Break

23 May 2017

16:15-18:00

Forum V CO2 Considerations

Chair: Umut Destegül Solaroglu, Enther Energy

GHG emissions from geothermal power plants - global experience and the case of Turkey

Thrainn Fridriksson, World Bank

Estimation of Long-Term CO2 Decline During Operation of Geothermal Power Plants

Prof. Dr. Serhat Akın, METU

CO2 Solubility on Geothermal Reservoirs

Sarah Pistone, Horizon Designs LLC

Hydro-geochemical properties of geothermal systems and its effect on the system in Turkey

Prof. Dr. Alper Baba, İzmir Yüksek Teknoloji Üniversitesi

18:00 End of Conference

23 May 2017

16:15-18:00

Forum VI Exploration for Geothermal Reservoirs

Chair: Eren Günüş, JeotermalHaberler

Exploration, Integrated multi-physics approach from Gediz graben

Dr. Ivan Guerra, Schlumberger

Geothermal Exploration and Reservoir Charac- teristics of Gediz Graben in Western Anatolia

Dr. Füsün S. Tut Hakkıdır, Bilgi University

Sivrihisar-3 Well: a terrific temperature finding in Cappadocia, Central Anatolia

Prof. Dr. Naci Gorur, 3S Kale

The value of three-dimensional resistivity models derived from surface geophysical methods for geothermal exploration

*Prof. Dr. Ahmet T. Başokur, Lemnis Geosciences/
Ankara Üniversitesi Jeofizik Mühendisliği Bölümü*

24 May 2017



Exergy – Field Trip

8:00 Meet-up at back of the
Swissôtel Büyük Efes İzmir

Sarayköy 12MW plant - Greeneco Enerji

Lunch Break

Kubilay 24 MWe plant - Beştepeler Enerji Üretim

17:30 Expected return

organized by



 **IGC** | Türkiye
2017

KW-Sponsors:



Lounge & Field Trip Sponsor



Global Communication Partner:



MW-Sponsors:



Cooperation Partners:



T.C. JEOTERMAL KAYNAKLI
BELEDİYELER BİRLİĞİ



THE RESEARCH AND UTILIZATION FOUNDATION OF
GEOTHERMAL ENERGY RESOURCES

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