

IBRD/TSKB

**Geothermal Development Project
Component II**

TSKB

26 April 2018

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TSKB

Türkiye Sınai Kalkınma Bankası

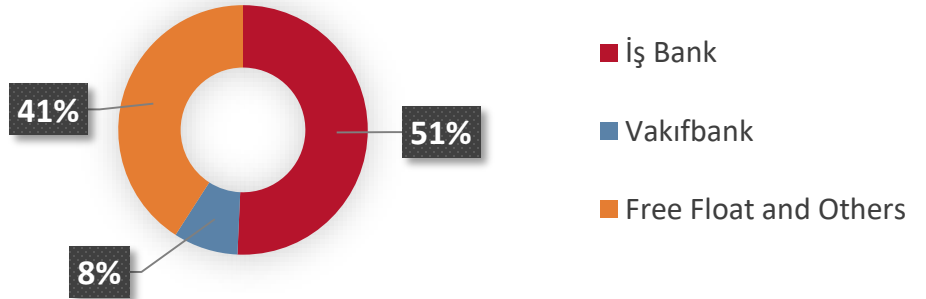
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Privately Owned Development Bank with Public/Private Mission

Private Sector
(both as client & shareholder)

DFI's
(as fund and knowhow providers)

Priorities of the Country

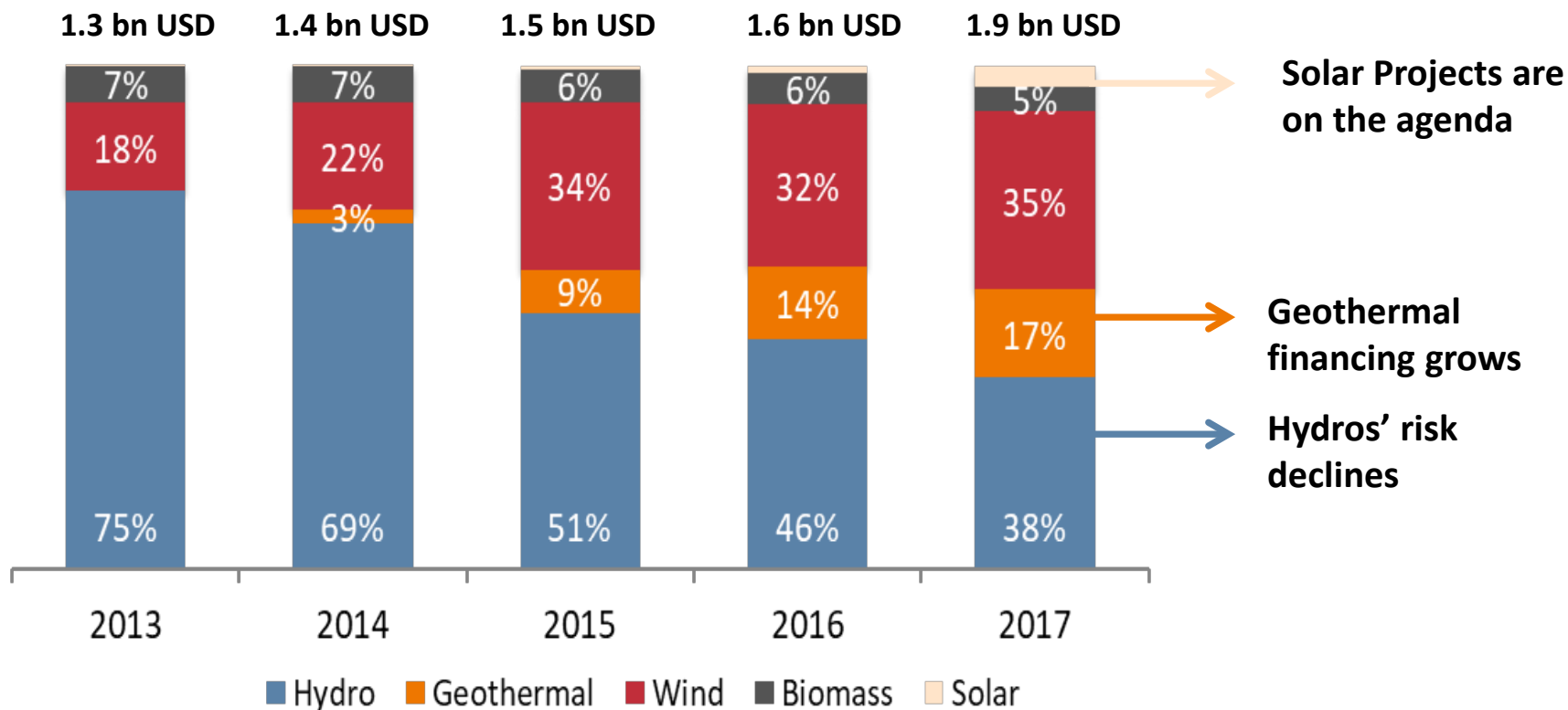


Provide financing to the sustainable investments in Turkey



TSKB's Renewable Energy Breakdown

Renewable Energy Portfolio (Outstanding)



TSKB's Renewable Energy Breakdown

Total 245 Plants – Total Installed Capacity 5.617 MW



93 HPP
Number of
Projects in
Construction: **4**

Total installed
capacity: **3.794**
MW



11 JES
Number of
Projects in
Construction: **3**

Total installed
capacity:
484 MW



29 WPP
Number of
Projects in
Construction: **4**

Total installed
capacity: **1.112**
MW



18 Biomass
Number of
Projects in
Construction: **13**

Total installed
capacity:
132 MW



94 SPP
Number of
Projects in
Construction: **15**

Total installed
capacity:
95 MW

- **Total financing committed:** 4.1 billion US dollars
- **Total investment cost:** 9.6 billion US dollars
- **Total Generation Capacity: 4,722 MWs**
(%15 of Turkey's total renewable energy installed capacity)

FiT Mechanism in Turkey

Guaranteed Sales Prices & Local Machinery Incentives

| Type | Guaranteed Sale Price (USD cent/kWh) | Local Machinery Incentives (USD cent/kWh) |
|------------------------|---|--|
| Hydro Power Plant | 7,3 | 1,0—2,3 |
| Wind Power Plant | 7,3 | 0,6—3,7 |
| Geothermal Power Plant | 10,5 | 0,7—2,7 |
| Biomass Power Plant | 13,3 | 0,4—5,6 |
| Solar Power Plant | 13,3 | 0,5— 9,2 |

RE Plants Participated in «YEKDEM» Portfolio

| | Established MW | | | | | | Number of Plants | | | | | |
|--------------|----------------|------------|--------------|--------------|---------------|---------------|------------------|-----------|-----------|------------|------------|------------|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| Hydro | 930 | 217 | 598 | 2.218 | 9.561 | 11.498 | 44 | 14 | 40 | 126 | 388 | 418 |
| Wind | 685 | 76 | 825 | 2.775 | 4.320 | 5.396 | 22 | 3 | 21 | 60 | 106 | 141 |
| Biomass | 73 | 101 | 147 | 193 | 204 | 311 | 8 | 15 | 23 | 34 | 42 | 57 |
| Geothermal | 72 | 140 | 228 | 390 | 599 | 754 | 4 | 6 | 9 | 14 | 20 | 29 |
| Solar | - | - | - | - | - | 13 | - | - | - | - | - | 2 |
| TOTAL | 1.760 | 534 | 1.798 | 5.575 | 14.684 | 17.972 | 78 | 38 | 93 | 234 | 556 | 647 |

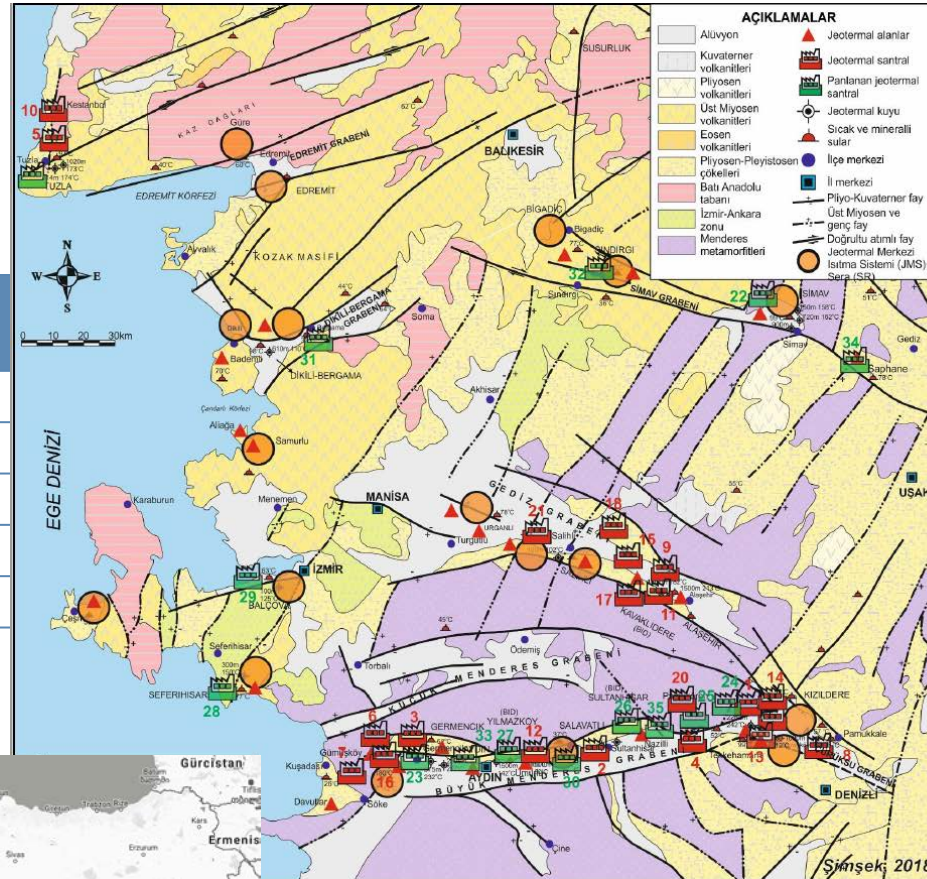
Mainly due to depreciation in TL

- The plants which become operative until 31/12/2020 can apply to YEKDEM and utilise incentives.
- The guaranteed prices are applicable for 10 years after commissioning.
- Local machinery incentives are applicable for 5 years after commissioning.

Installed and Planned Geothermal Capacity & Distribution in Turkey

Installed – Constructed – Planned Capacity (as of March 2018)

| | |
|--------------------------------------|-----------------|
| Total Installed Capacity | 1.100 MW |
| Constructed Capacity | 200 MW |
| Pre-licensed Project Capacity | 273 MW |
| Planned Capacity | 559 MW |
| Total Capacity | 2.132 MW |



BATI ANADOLU'DA BAŞLICA JEOTERMAL ALANLAR VE UYGULAMALAR

- Jeotermal Elektrik Santrali**
- Kuru Kapasite**
- 1-Denizli-Kızıldere (200-245°C) (Zorlu)
 - 2-Denizli-Kızıldere (140°C) (Bereket)
 - 3-Aydın-Salavatlı (171°C) (MeGe)
 - 4-Aydın-Germencik (276°C) (Çelikler)
 - 5-Çanakkale-Tuzla (174°C)(Enda)
 - 6-Aydın-Hıdırbeyli (180°C) (Maren)
 - 7-Aydın-Gümüüşköy (180°C) (BM)
 - 8-Denizli-Geralı (124°C) (Değirmenci)
 - 9-Manisa-Alaşehir (185°C) (Türkerler)
 - 10-Çanakkale-Ayvackı (160°C) (İMTN)
 - 11-Manisa-Alaşehir-Alkan (193°C) (Zorlu)
 - 12-Aydın-Umurlu (155°C) (Kar-Key)
 - 13-Denizli-Tekkehamam (203°C) (Greeneco)
 - 14-Denizli-Tosunlar (103°C) (Akça)
 - 15-Manisa-Alaşehir-Kemaliye (160°C) (Enerjeo)
 - 17-Manisa-Alaşehir (180°C) (Sis)
 - 18-Manisa-Alaşehir (287°C) (Maspo)
 - 19-Afyonkarahisar (125°C) (Afjet)
 - 20-Denizli-Kuyucak-Yöre (200°C) (Turkas)
 - 21-Manisa-Salihli-Catertbeyli (168°C) (Sanko)
- Proje Aşamasında**
- 22-Kütahya-Simav (164°C)
 - 23-Aydın-Germencik (239°C)
 - 24-Denizli-Kızıldere (245°C)
 - 25-Aydın-Buharkent (146°C)
 - 26-Aydın-Sultanhisar (146°C)
 - 27-Aydın-Yılmazköy (142°C)
 - 28-Izmir-Sefehisar (153°C)
 - 29-Izmir-Balçova (142°C)
 - 30-Aydın-Atça (124°C)
 - 31-Izmir-Dikili-Bergama (130°C)
 - 32-Balıkesir-Sındırgı (107°C)
 - 33-Aydın (=100°C)
 - 34-Kütahya-Saphane (188°C)
 - 35-Aydın-Nazilli (168°C)
- Jeotermal İzlatma (Sehir+Sera)**
- Izmir-Balçova (JMS+SR)
 - Balıkesir-Edremit (JMS+SR)
 - Denizli-Sarayköy (JMS+SR)
 - Manisa-Salihli (JMS+SR)
 - Kütahya-Simav (JMS+SR)
 - Izmir-Dikili (JMS+SR)
 - Balıkesir-Bigadiç (JMS)
 - Manisa-Turgutlu (SR)
 - Manisa-Salihli-Lider (SR)
 - Denizli-Agro Pekdemir (SR)
 - Denizli-AKÇA (SR)
 - Izmir-Çeşme (JIS)

Geothermal Development Project (IBRD)

Main Objective: Promote private sector investments in geothermal energy development in Turkey.

Component 1: Risk Sharing Mechanism Supporting exploratory drilling phases (Managed by **TKB**)

Component 2: Loan Facility (totally 250 mn USD)
Long-term financing for resource development and plant/heat application development phases (independent from component 1)
(Managed by **TSKB** and **TKB**)

TSKB's Share: 150 + 37,5 mn USD

TKB's Share: 100 + 25 mn USD

Total project amount
312,5 mn USD

no more than 60% of the proceeds of the Loan (150 mn USD) will be allocated to sub-projects, having net CO₂ emissions more than 583 g/kWh



Eligibility Criteria for Sub-Project

Key Financial Criteria

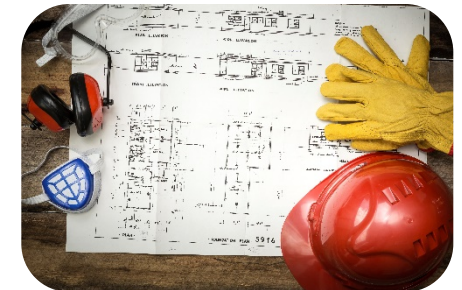
- Project IRR: min. 6 %
- Debt coverage ratio: min. 1.10
- Min. Debt to Equity Ratio: 85:15
- Min. 8 years maturity with min. 1 year grace period
- Min. maturity of 10 years (for CO₂ capturing equipment)
- Max. 60 mn USD per project



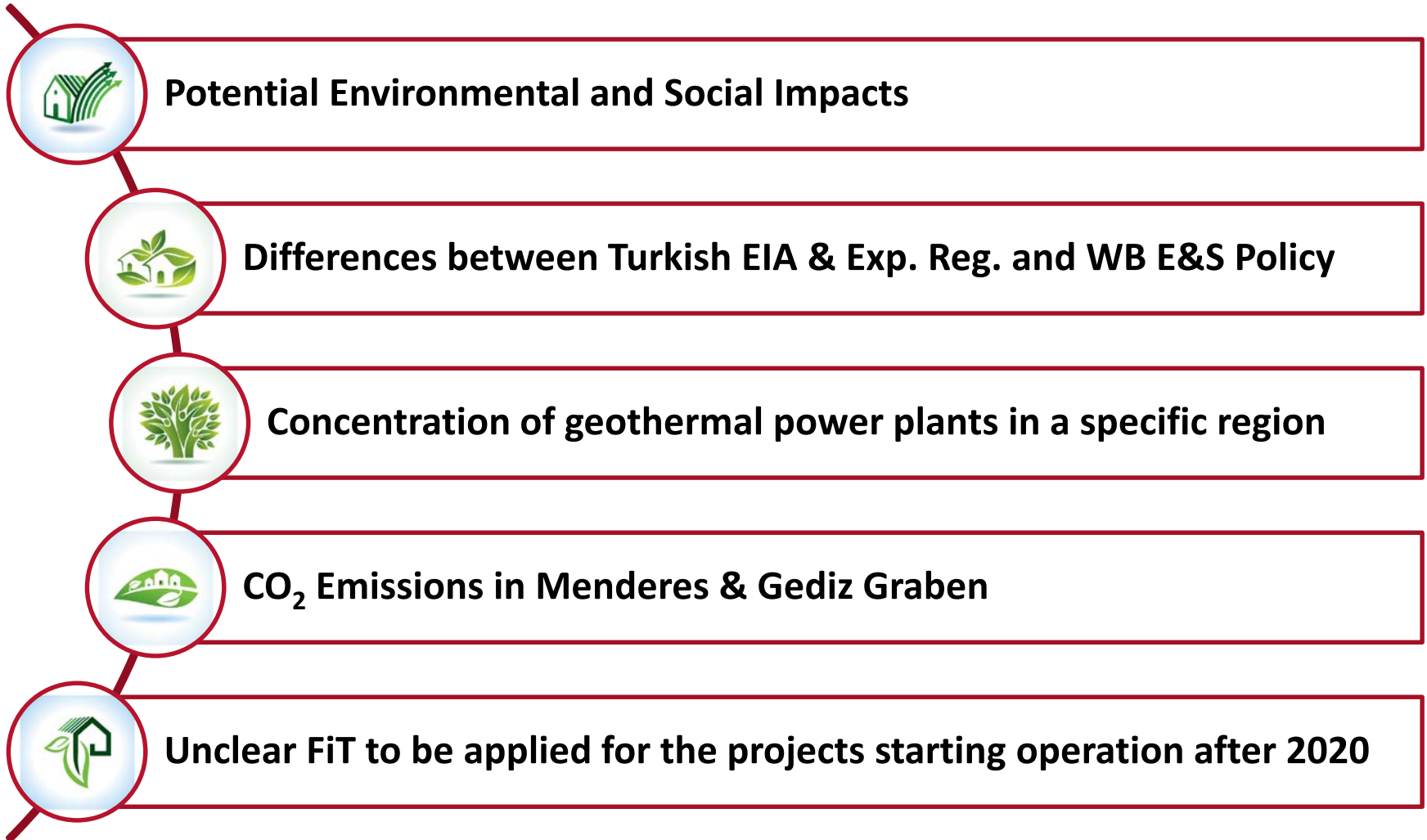
WB Safeguards

- Compliance with Environmental and Social Framework
- Compliance with Resettlement Policy Framework

WB Procurement Process



Main Challenges





Thank You



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