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IENE

Turkey: The New Leader for International Gas Trade?

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`The interpretations, estimates and/or opinions reflect the judgment of the authors, not the Company`

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TÜRKERLER

OUTLINE

1. TURKERLER & ANGORAGAZ
2. Turkey General Energy Picture
3. Natural Gas Situation
4. Pipeline Projects through Turkey
5. Demand and Supply
6. Iraq and KRG
7. Azerbaijan TANAP
8. TAP versus Nabucco west
9. Israel Tamar and Leviathian Field
10. Cyprus
11. Conclusion

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Overview of Türkerler Group

Construction

- Contract Work
- Real Estate Development
- Water & Infrastructure

Highlights

- A leading brand in the construction business
- Pipeline of A+ real estate development projects
- Significant growth potential for infrastructure

International Alliances

OTV International, a Veolia Water company

Energy

- Generation
- Distribution
- Trading

Highlights

- 250 MW of power plants to be operational by '14
- 485.000 power distibution customers (pending)
- 405.000 gas distribution customers in İzmir

International Alliances

Crescent Petroleum

Public-Private Partnership

- Healthcare

Highlights

- Won the tender for Turkey's first and largest PPP
- Ankara, İzmir, Kocaeli healthcare campus projects

Local & International Alliances

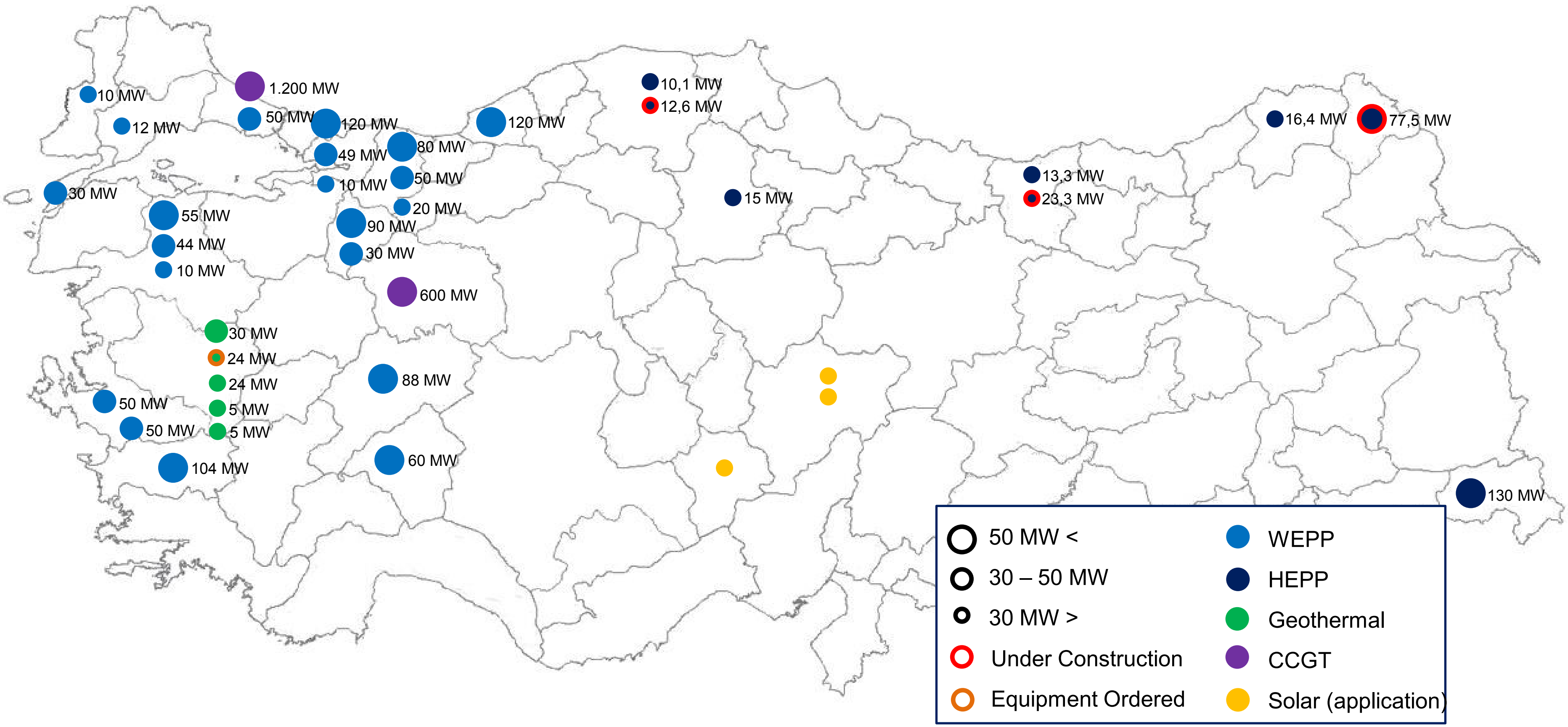
Astaldi SpA, Gama Holding

Others

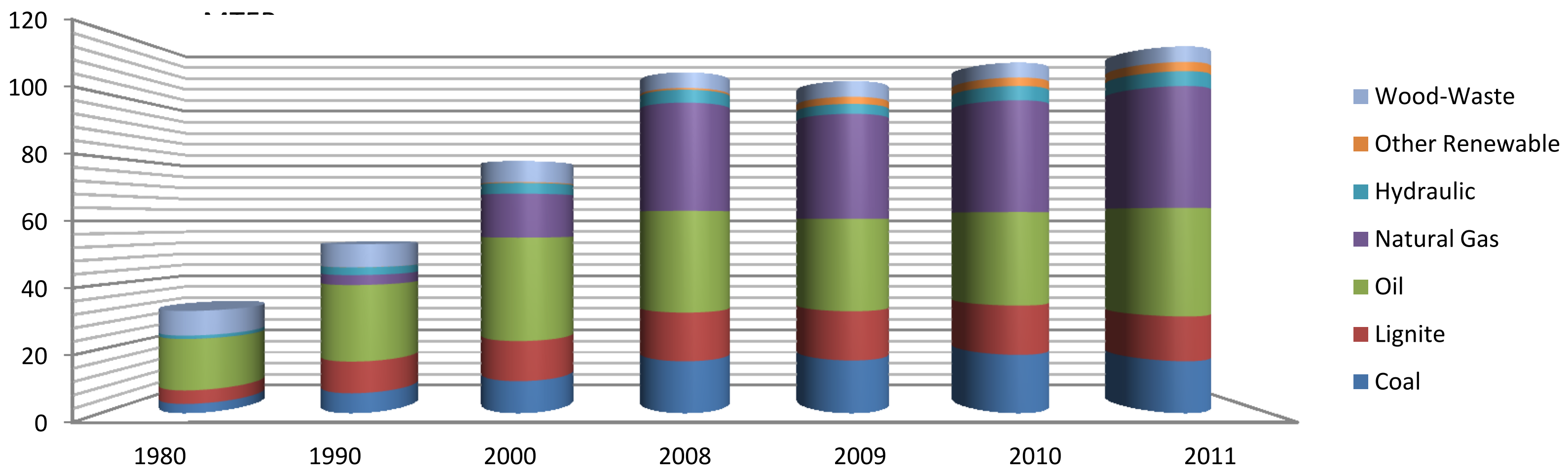
Several companies operating in the textile, oil and IT sectors

Generation

- One of the largest and most diverse power generation project portfolios in Turkey
  - 1.800 MW of CCGT, 1.132 MW of WEPP, 300 MW of HEPP and 88 MW of Geotermal projects



Development of Primary Energy Consumption of Turkey



	Coal	Lignite	Oil	Natural gas	Hydraulic	Other Renewable	Wood-Waste	Total
1980	8,9	13,2	50,5	0,1	3,3	0,0	24,1	100,0
1990	11,7	18,8	45,3	5,9	4,6	0,1	13,7	100,0
2000	12,6	15,9	41,1	17,5	4,3	0,3	8,2	100,0
2008	15,2	14,3	29,9	31,8	3,8	0,5	4,5	100,0
2009	15,8	14,8	27,9	31,6	3,0	2,2	4,6	100,0
2010	16,6	14,1	26,7	31,9	4,1	2,4	4,2	100,0
2011	17,0	14,4	26,7	32,3	3,9	2,7	3,1	100,0

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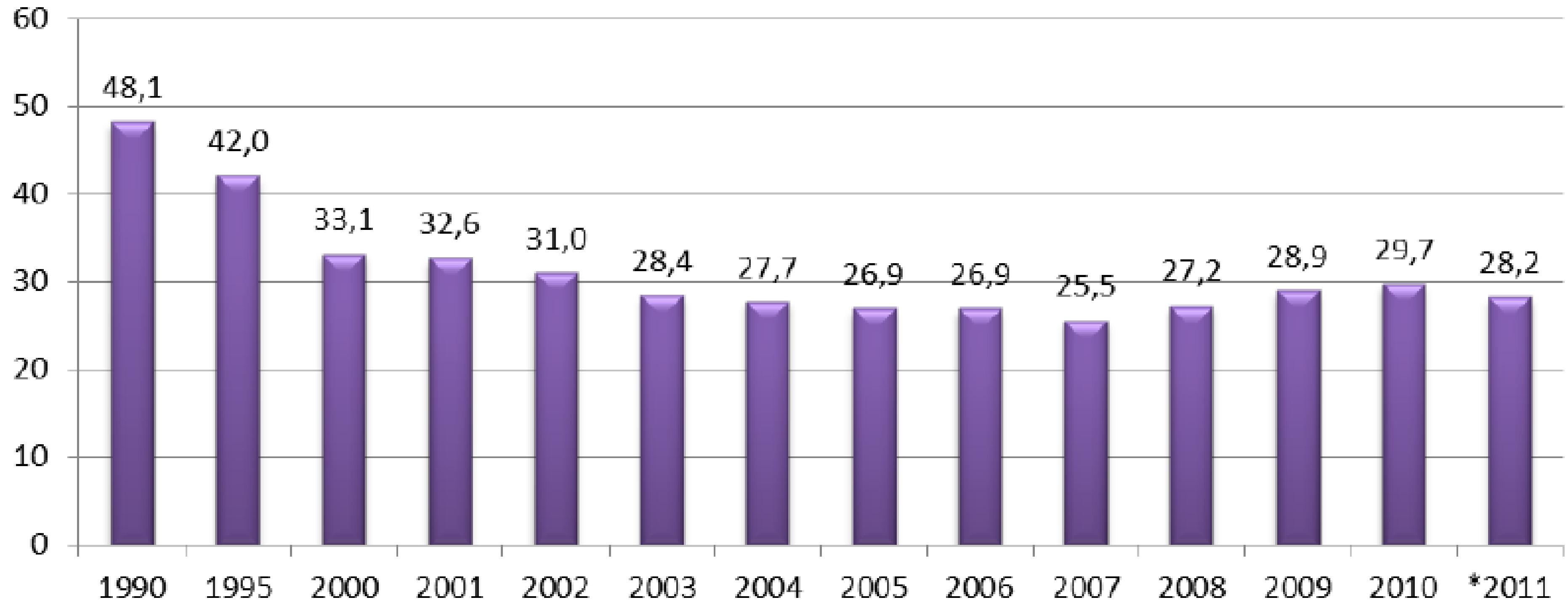
Share Of Domestic Production In Primary Energy Consumption (%) 1990-2011



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Turkey Energy Sector Basic Indicators

- High dependence on imported energy sources: %71,8
- Turkey's annual energy demand growth: since 1990 %4,6

(Annual rate of increase in demand for the same period of EU: 1,6%)

- Annual Demand Forecast for Primary Energy: %4.
- Annual growth rate of electricity demand by 2020 : %6,7 (low scenario) or %7,5 (high scenario).
- Electricity consumption per capita is 3.199 kWh/year (1/3 of EU
- EMRA estimated as 225-280 billion $ as investment need between 2010-2030.

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NATURAL GAS SUPPLY SOURCES AND TRANSIT PIPELINES

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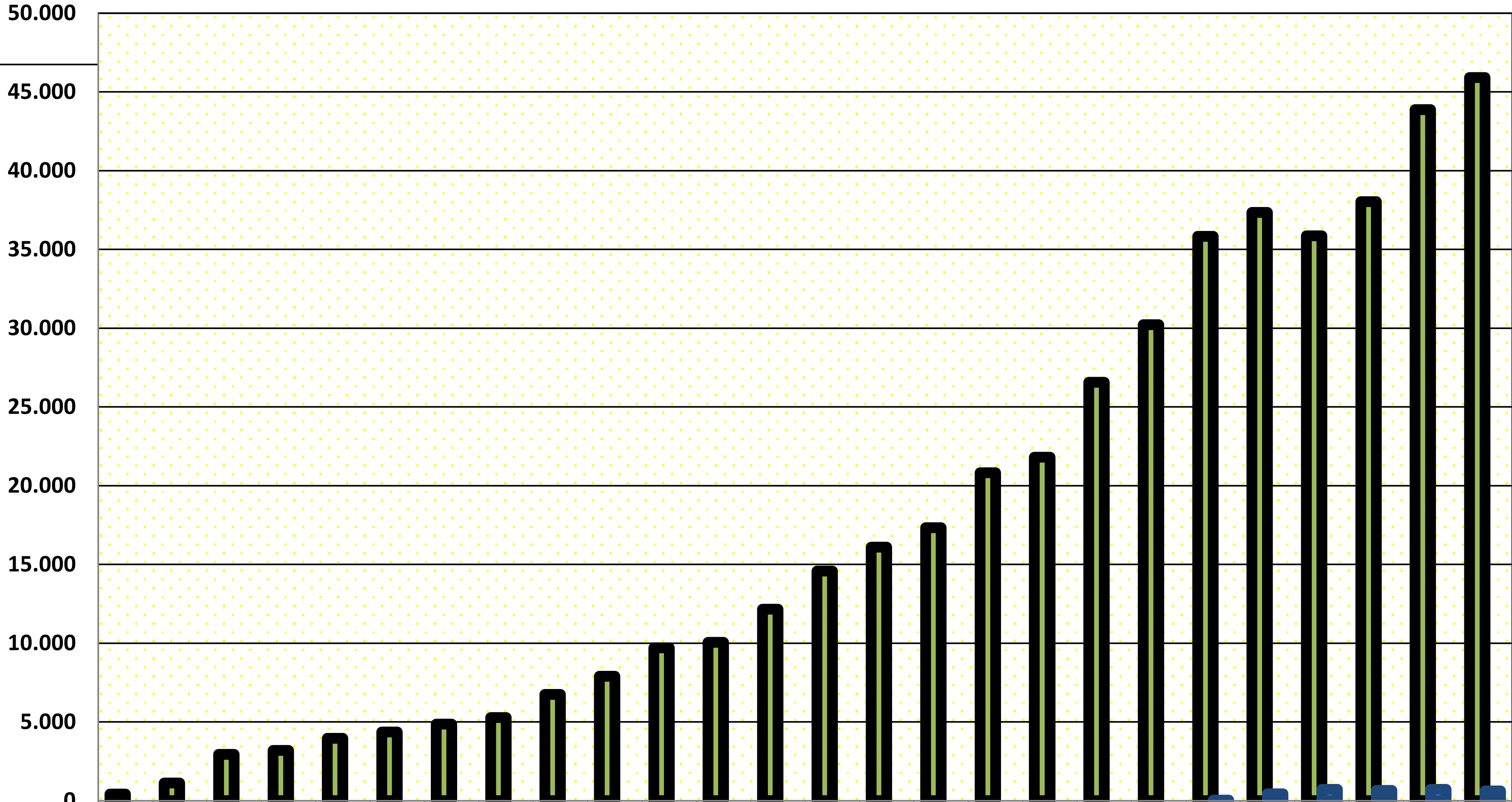
Import and Export



	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IMPORT	426	1.117	2.935	3.191	3.963	4.355	4.868	5.284	6.742	7.904	9.707	10.06	12.14	14.57	16.09	17.32	20.82	21.79	26.57	30.22	35.83	37.35	35.85	38.03	43.87	45.92
RE-EXPORT																					31	443	721	660	726	611

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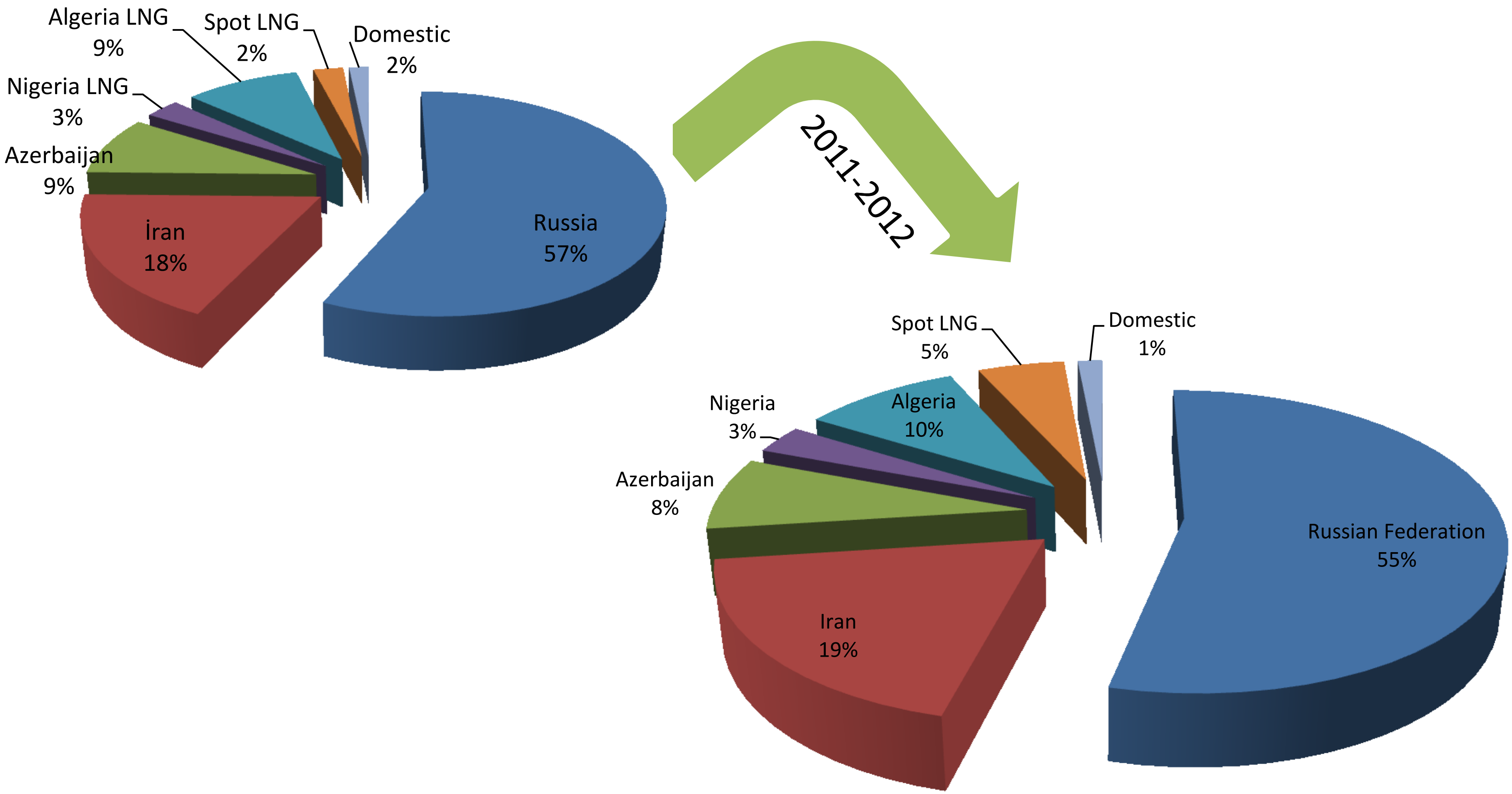
Turkey's Natural Gas Supply by Countries(2011-2012)



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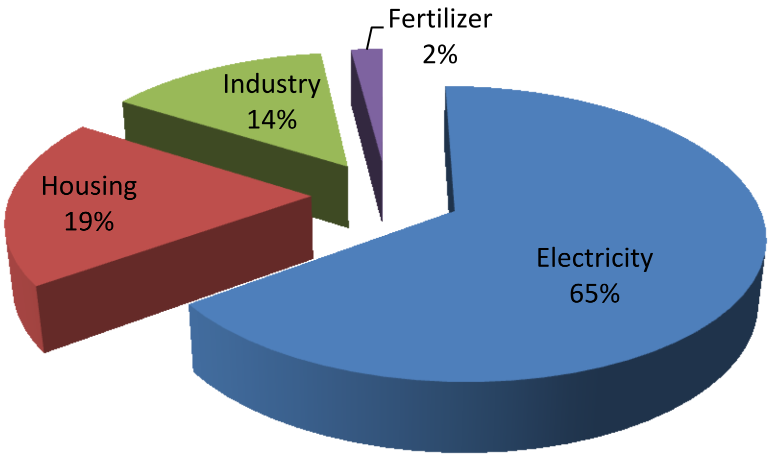
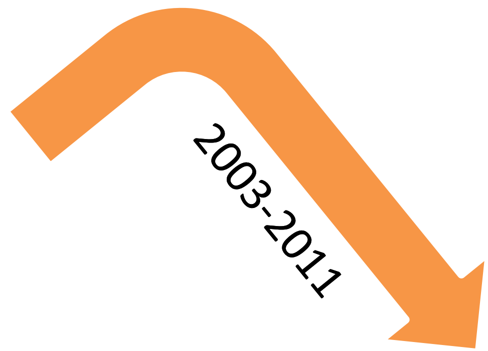
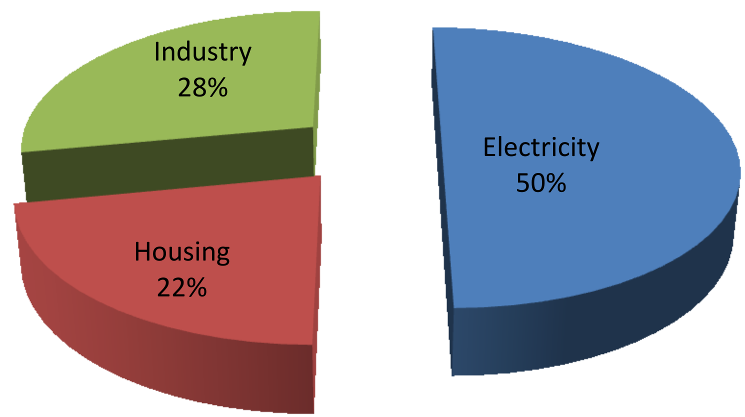
Sectoral Consumption Of Natural Gas





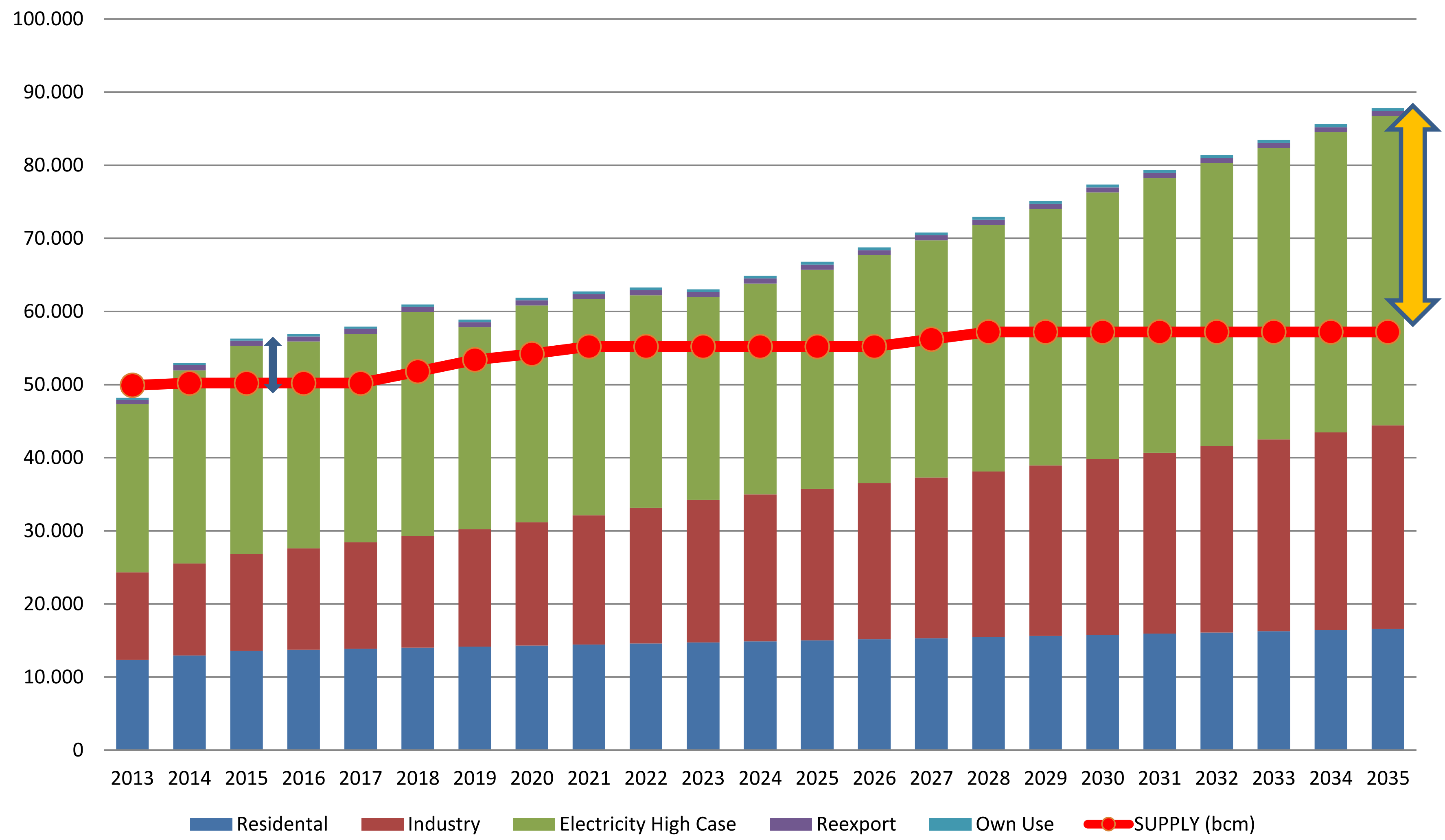
2003



2011

Source: GAZBİR

Demand and Supply



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Potential and Possible New Gas Supply Resources

- Northern Iraq / Iraq
- Eastern Mediterranean Offshore
- Shah Deniz II & New Fields in Azerbaijan
- Black Sea Off-Shore
- Shale Gas

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Iraq in World Oil Ranking & Reserve Potential

Top Proven Reserve Holders :

1. Saudi Arabia — 265.4 billion bbl
2. Iran — 151.2 billion bbl
3. Iraq — 150.0 billion bbl

Total Potential Reserves :

Iraq → 250 bbl oil & 3.2 - 5 tcm gas

N. Iraq (KRI) → 40 - 45 bbl oil & 1 - 2 tcm gas

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Source: BP & USGS

Opportunities in Iraq (II)

- ✓ Current daily production: 3 mmbd (first time since 1979)
- ✓ Daily production targets: 6 mmbd in 2020 and 8 mmbd in 2030
- ✓ But its possible potential up to 10 - 11 mmbd
- ✓ Investment needed until 2030: 500 billion USD

Iraq will be a key player in the next 10-15 years

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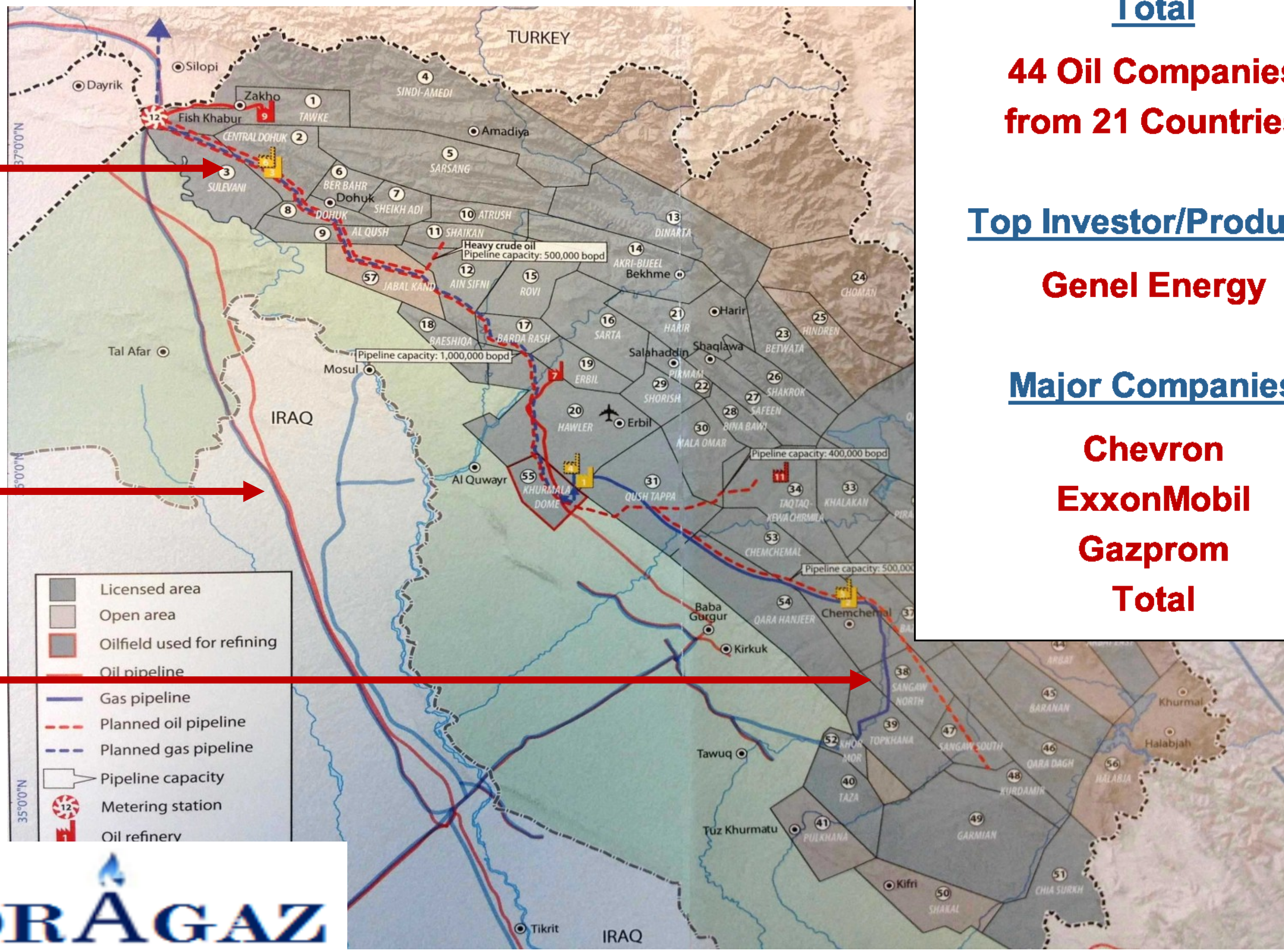
Current & Projected Pipelines in Northern Iraq

New oil & gas pipelines

Kirkuk – Yumurtalik Oil Pipeline

Khor Mor Gas Pipeline



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Total

44 Oil Companies from 21 Countries

Top Investor/Producer

Genel Energy

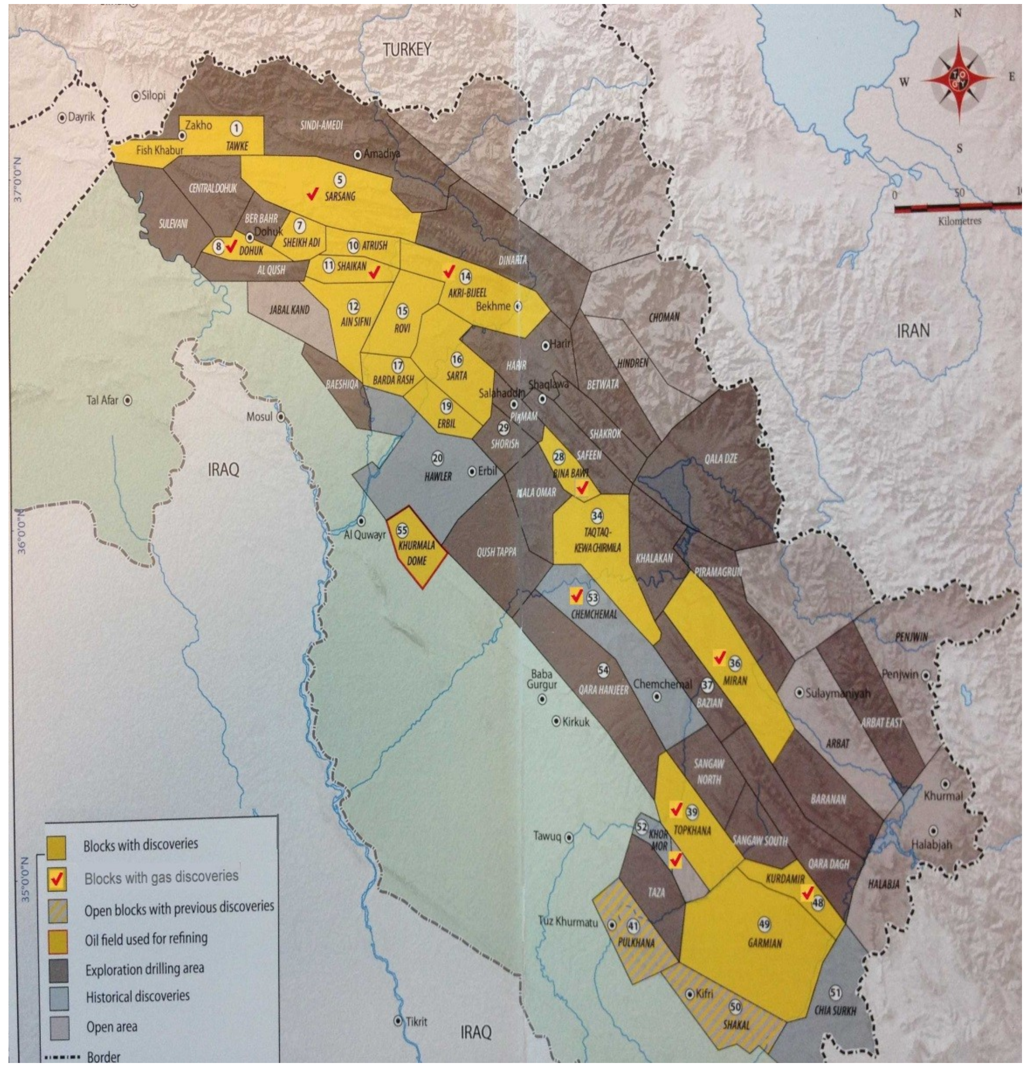
Major Companies

Chevron
ExxonMobil
Gazprom
Total

Source: Genel Energy

Gas Fields Explored in Northern Iraq

Miran	198 bcm
Chemchemal	59 bcm
Khor Mor	51 bcm
Shaikan	43 bcm
Kurdamir	27 bcm
Dohuk	?? bcm
Akrı-Bijeel	?? bcm
Sarsang	?? bcm



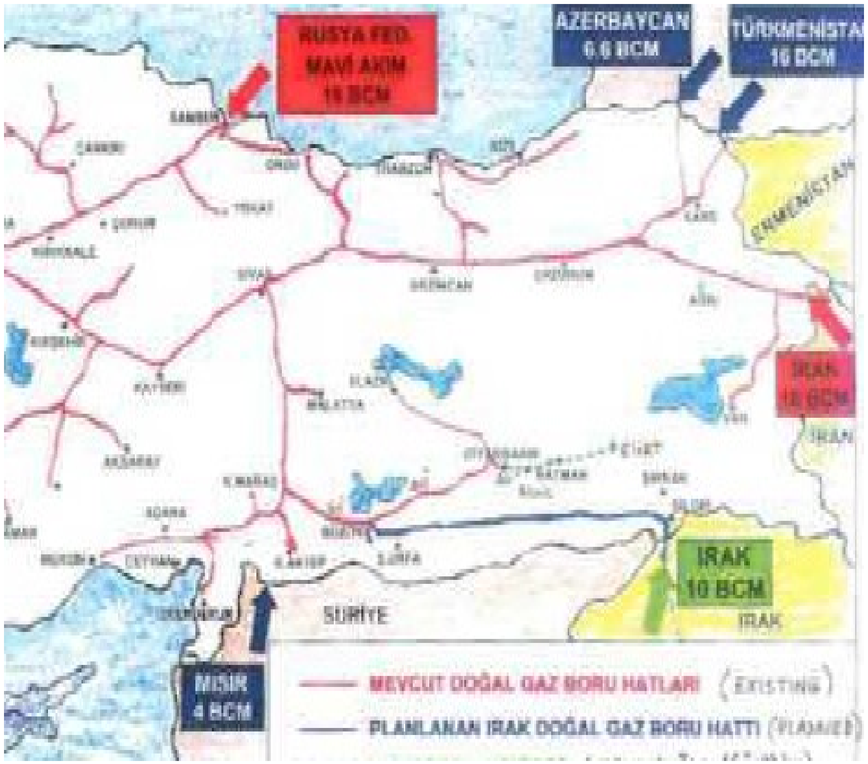
➤ **Gas Import Potential**

15 bcma in 10 years

30 bcma in 20 years

Source: Genel Energy

IRAQ and/or KRG



366 km 40 inch initally 10 bcm but 20 bcm future. Paralel existing ITP

- **Domestic market first**
- **The MNR is confident having reserves to meet domestic demand and the critical mass long term gas export agreements**
- **Gas exports will initially focus on the Turkish market**
- **Kurdistan Gas fields strategically placed to compete in the Turkish market, with its gas fields lying closest to the Turkish market**
- **Piped gas to Europe seen as a priority**
- **Nabucco and TAP all possible alternatives for Kurdistan Gas.**

Source : Saad Sadollah MNR 1 October 2012 Istanbul

Gas Fields Explored in Eastern Mediterranean

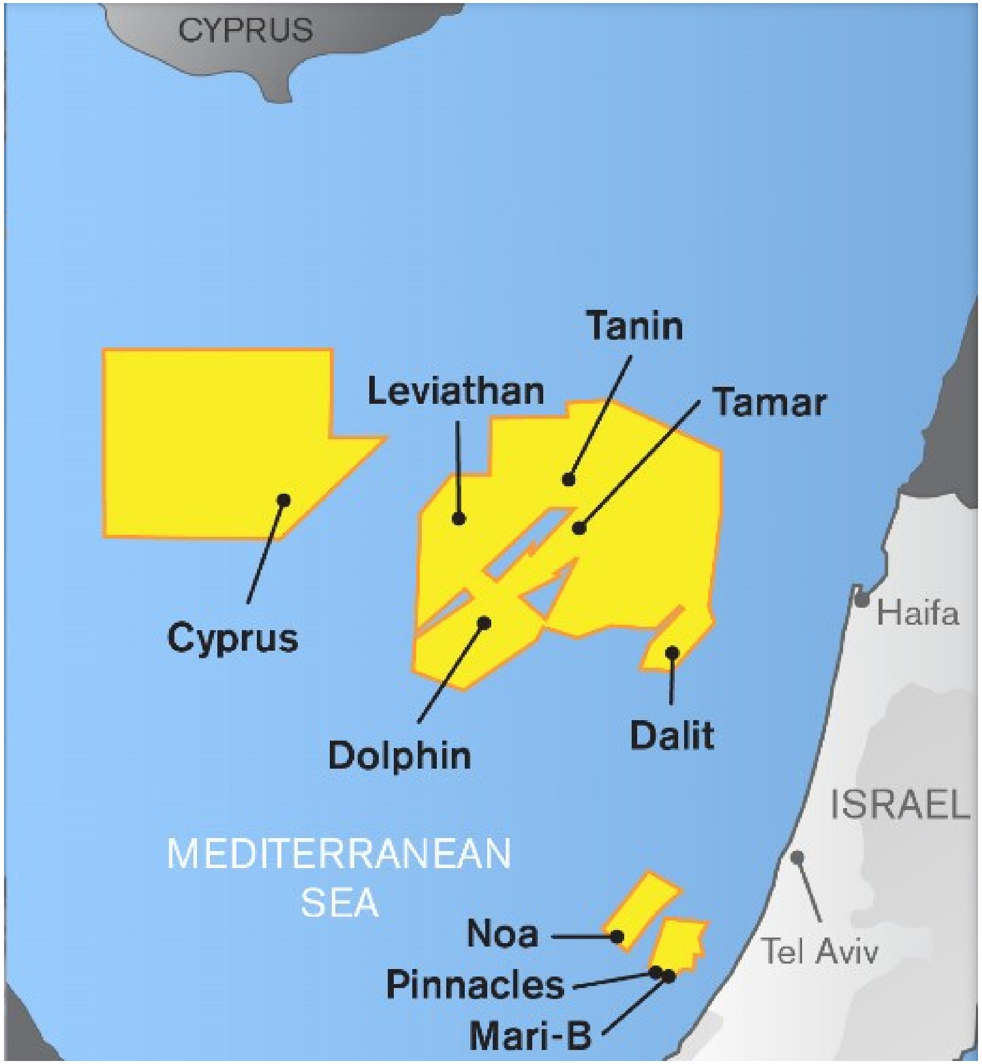
Leviathan	17 tcf
Tamar	8.4 tcf
Cyprus Aphrodite	5-8 tcf
Noa + Mari-B	1.1 tcf
Dalit	0.5 tcf

- **Export Capacity**

10 - 12 bcma in 10 years

- **Most Feasible Route**

Israel - Turkey Pipeline



Source: Noble Energy

Azeri Gas in Turkey & Europe
TANAP + …?

Azerbaijan/TANAP

- TURKEY & AZERBAIJAN signed IGA on 25 October 2011 for the Sales of Azeri Natural Gas to Turkey, transit passage and development of Stand-alone Pipeline for the transportation of Azeri Natural gas through Turkey.
- Project Consortium will be formed SOCAR (minimum 51%) -80% BOTAS and/or TPAO 20% at the beginning. BP has stated their intention to join TANAP.
- Capacity of the pipeline will be minimum 16 bcm and shall be scalable to accommodate future natural gas volumes originating and transmitting from the Republic of Azerbaijan.
- Pipeline diameter is mainly 56 inch 7 Compressor Station but 2-3 initially.
- Target is to be in Operation in 2018.
- Final investment decision will be taken in the fourth quarter of 2013

- Azery Pipeline Project potentially lies further to the east in Turkmenistan, to some extent possibly other Central Asian countries.
- Turkey providing the same intensives such as no tax etc. to TANAP Co.
- Turkey is a good and stable opportunity to exit for selling and transiting of Iraq’s and Azery’s Natural gas.
- On the European side of the project there are two competing Pojects: TAP ad Nabucco West.

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Nabucco versus TAP

- OMV of Austria, MOL of Hungry Transgaz of Romania, Bulgarian Energy Holding, Botas of Turkey and RWE of Germany
- 1320 km 48 inch
- Bi directional-Reverse Flow
- Designed to 10 bcm but expandable to 23 bcm
- 16 bcm storage capacity
- Serbia, Croatia, Bosnia and Herzegovina, Macedonia, Slovenia, and Italy, Montenegro, Greece and Albania. IGA and ratif

- Axpo of Switzerland (42.5%), Norway's Statoil (42.5%) and E.ON Ruhrgas of Germany (15%).
- 791 km and 48 inch
- Shortest offshore pipeline
- Reverse flow up to 80% , Africa
- Designed to 10 bcm and expandable to 20 bcm
- Capable of connecting with countries - such as FYROM, Serbia, UNMI Kosovo, Montenegro, Bosnia Herzegovina, and Croatia .
- IGA signed

- Transportation tariff will be studied more and final decision will be taken in the mid of 2013.
- It is important all four pipelines into a synchronized move forward so that not only making final investment decision, but on a day in 2018 when gas from the first Shah Deniz 2 well under the water in the Caspian Sea comes, Extension of Sangachal terminal must be ready, the South Caucasus Pipeline ready, TANAP ready European pipeline ready so we can say Southern Corridor really flowing and gas consumers in Europe who want to buy, who want to burn gas from Azerbaijan and start to use it.

Concluding Remarks

- Turkey provided all incentives to existing ITP (Iraq) and BTC oil projects.
- Turkey is re-exporting Azery gas to Greece.
- Azerbaijan is going to use Turkish teritories for transmitting Shah Deniz Gas through TANAP.
- Russian Federation will use Turkish Teritorial waters for South Stream in Black Sea.
- Being a stable country with 7 different gas entry points Turkey will be good choice not only to prevent monopolistic gas supply habit also for transportation of Middle East, North East Mediterranean and Caucasian Gas to Europe.

The Sources

1. Turkey Energy Outlook Report 2012, Chamber Of Mechanical Engineers
2. Turkey Energy Outlook Presentations, Chamber Of Mechanical Engineers
3. Turkey Natural Gas Market Report ADG Consultancy
4. EMRA web site and presentations
5. BOTAŞ web site
6. PETFORM presentations

I am gratfull for giving permission to use the slides and information of Mr. Oğuz Turkyilmaz Chamber of Mechanical Engineers, Mr. Cenk PalaTAP Representative Turkey, Mr. Turgay Gunay, Mr. Ozgur Hakanoglu TANAP and Mr. Orhan Duran Chairman of Petform.

THANK YOU

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