
Turkey as a Hub For Transit Projects

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“Turkey has a strong geographic position, a large domestic market to anchor investments It has the cards in its hand to be a country of reference for regional developments in the energy sector. “

“I have no doubt that Turkey can develop into a major energy hub, and that it can fulfil a role in this region as an anchor of stability, reliable energy supply and a meeting place between Europe and Asia. However, for this leadership role to be effective, there must be a strong sense of strategic direction, and a credible commitment that this direction will be consistent and sustained.”

“From Russia to the countries of the Caspian, the Middle East and the Mediterranean, Turkey has every major gas and oil producer within easy reach. Middle Eastern gas reserves are closer to the European market than those of Russia, and Turkey is the natural conduit for these resources, as a hub, or bridge, or corridor between Asia and Europe and also as a market in its own right. Common rules and principles for energy cooperation can provide the foundation for Turkey to lead energy developments in this region.”

What is a Natural Gas Hub?

- Either legal or physical delivery point
 - Trading environment or point
 - Delivery
 - Clearing
 - Liquidity
 - Pricing point
 - Place to handle physical constraints
 - Physical and trading point
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Necessities for Successful Natural Gas Hubs

- Good and attractive location
 - Central to a region
 - At the intersection
 - Physical capacities
 - Transparencies
 - Accessibility (Easy third party access)
 - Simple delivery mechanism
 - Low Cost
 - Market Mechanism and market understanding
 - Standardised trading opportunities
 - Liquidity
 - Reliable regulatory authority
 - Clearing and settlement
 - Simple and internationally accepted legislation
 - Human resource
 - Large volumes of available gas for sales in the market
 - Low delivery risk
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What will Hub bring region?

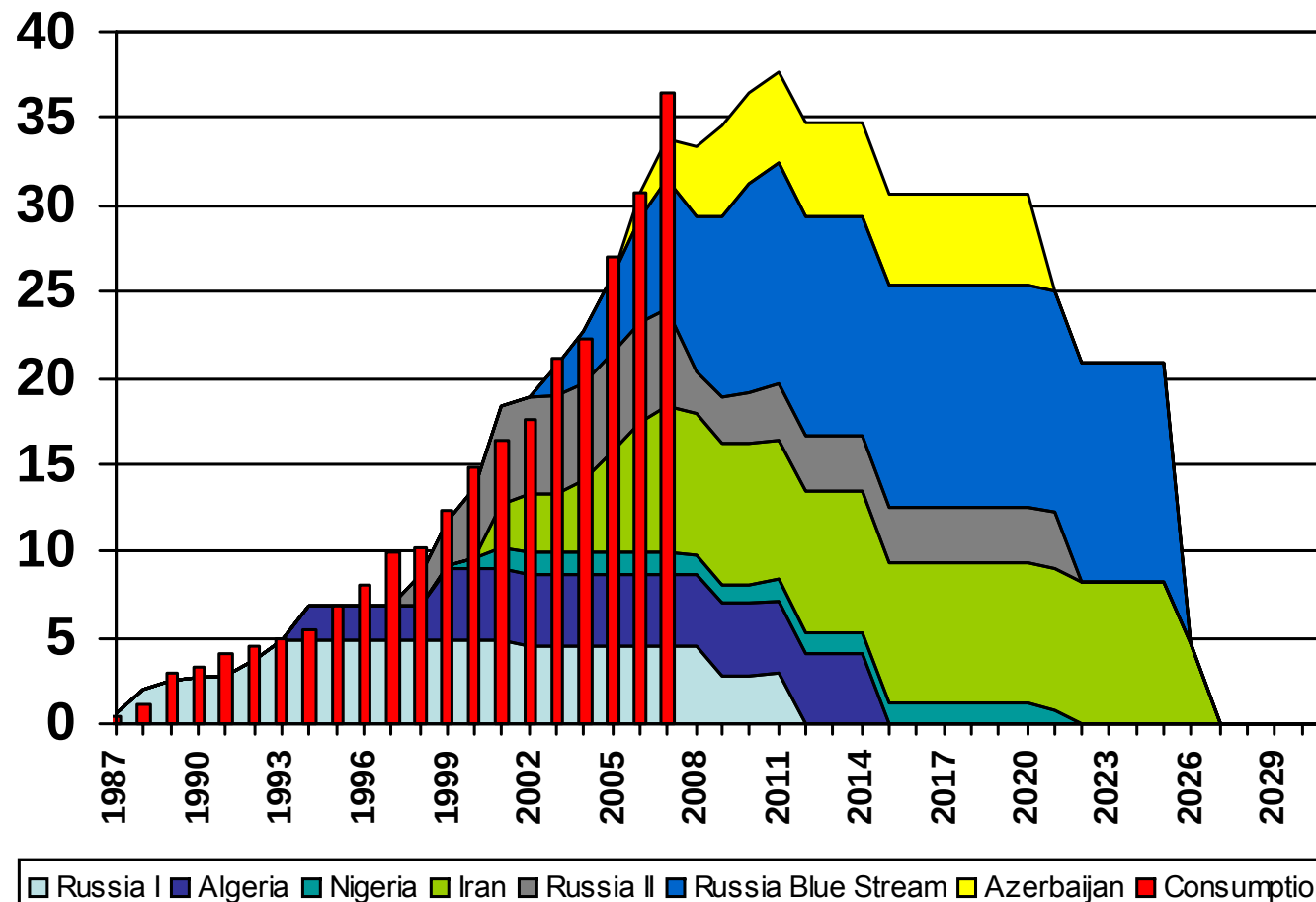
- Price indexation
 - Gas to gas competition
 - East Mediteranian Spot LNG references
 - Net back price and references to the new projects at the proximity of the region
 - Market opportunities to the suppliers
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Objective of Natural Gas Market Law

4646

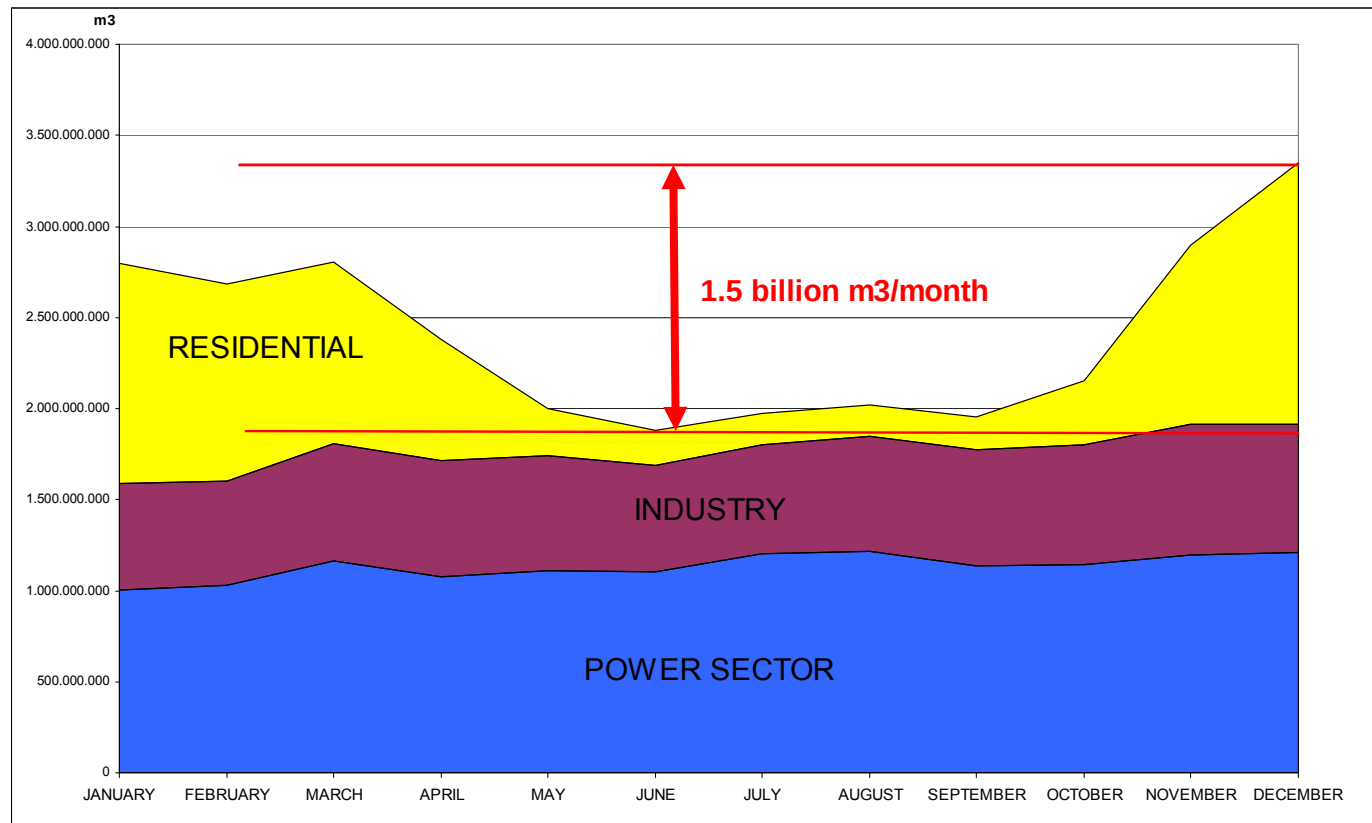
ARTICLE 1.— This Law concerns with liberalization of the natural gas market and thus formation of a financially sound, stable and transparent markets along with institution of an independent supervision and control mechanism over the same, so as to **ensure supply of good-quality natural gas at competitive prices** to consumers in a regular and environmentally sound manner under **competitive conditions**.

Turkey's Oversupply Argument



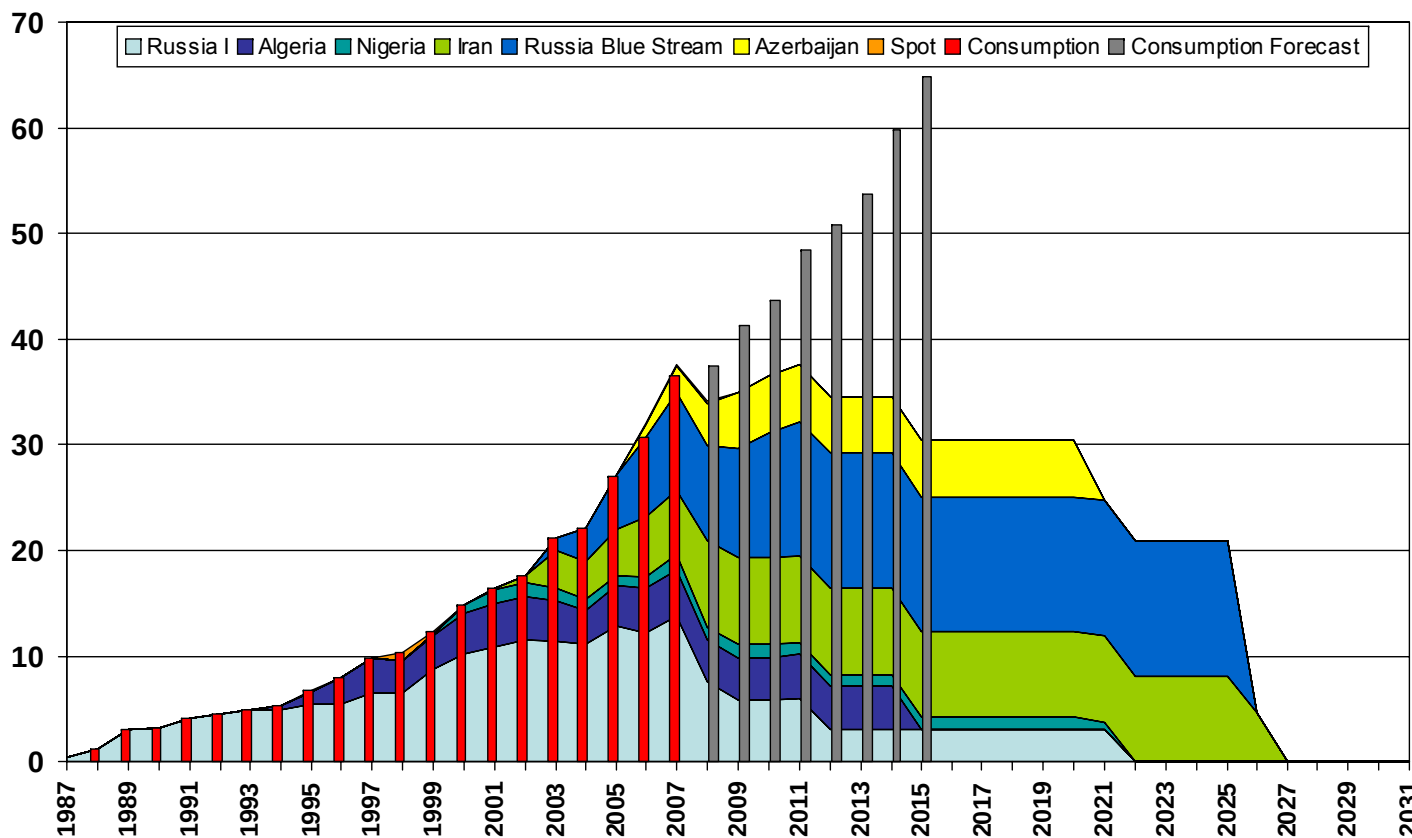
- Except Turkmenistan Contract BOTAŞ never faced oversupply
- BOTAŞ never disbursed T-o-P
- Contracts always have instrument to play with ACQs
- BOTAŞ's problem has been always peak demand management

Monthly Natural Gas Consumption of 2007



- Load Factor of 64 %
- Lack of Sufficient Underground Storage
- No interruptable Customer profile
- 53 New Distribution companies
- Serious domestic demand

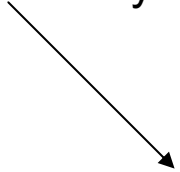
Comparison of BOTAŞ's Commitment and Demand Profile



- Deloitte forecasts 43,6 bcm in 2010, 64,7 bcm in 2015.
- Deloitte forecasts 10,745 MW additional natural gas driven power plants.
- Serious demand especially after 2011 due to new power plants
- BOTAŞ forecasts 43,8 bcm in 2010, 56,9 bcm in 2015.
- Long and difficult Long term contracts negotiation

Temporary Article No 2 of Law 4646

EMRA responsibility



“The Board may give permission for import from the countries other than those which contracts have already been executed by BOTAS by evaluating the applications within the framework of the procedures and principles to be determined by taking into consideration the formation of a competitive environment in the market, the obligations arising from existing contracts and export connections. However, no new gas purchase contracts can be executed by any import company with the countries which has already signed contracts with BOTAS, until the expiration of the term of these contracts. New import contracts can be executed for the same amounts following the expiration dates of such existing contracts. However, new gas purchase connections can be established with such countries with the purpose of exportation or in case lack of national natural gas supply occurs.”

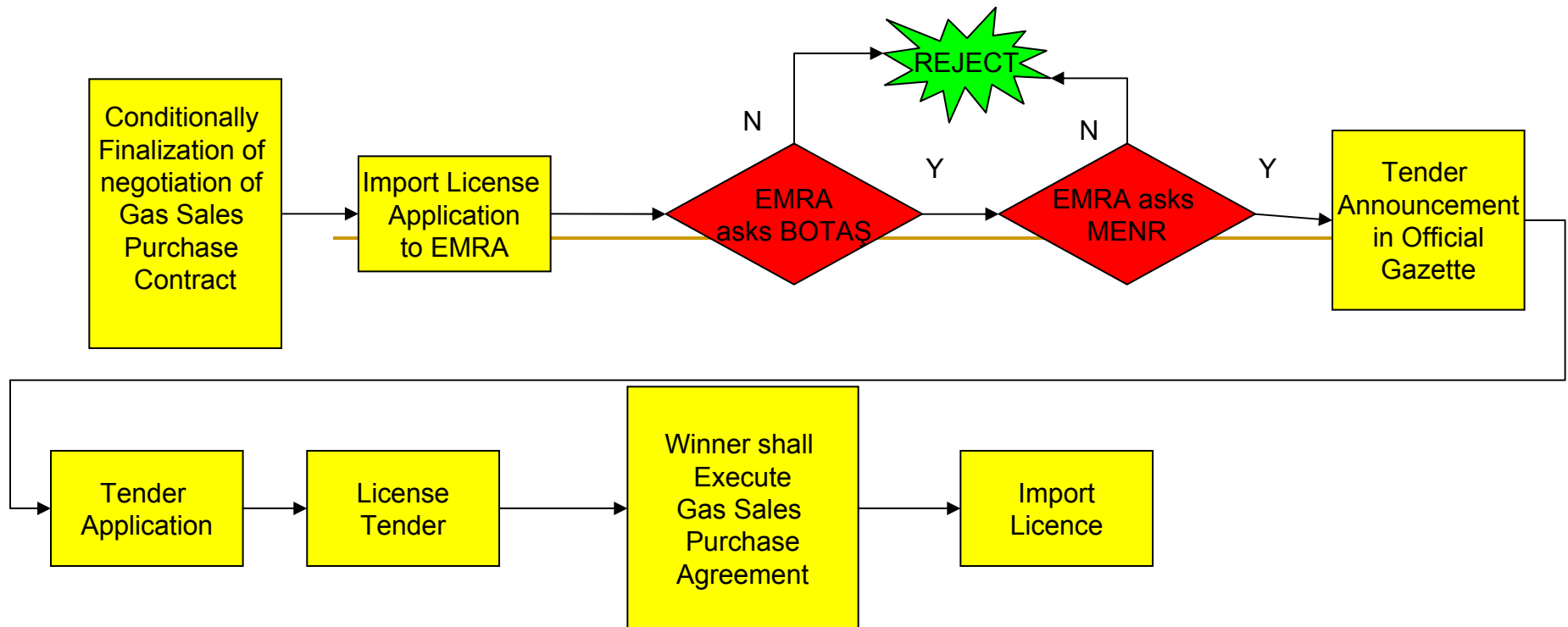
Long Term Gas Contracts of Turkey

	BOTAS- Gazprom Contract I	BOTAS- Turusgaz Contract	BOTAŞ- Gazprom Contract II	BOTAŞ- Gazprom Contract III (Blue Stream)	BOTAŞ- NIGC Contract (Iran Gas)	BOTAŞ- AGSC Contract (Shadeniz Gas)	BOTAŞ- Sonatrach Contract (Algeria)	BOTAŞ- NLNG Contract (Nigeria)	BOTAŞ- Turkmenist an Contract	Shell- Gazprom Contract	Enerco- Gazprom Contract	Bophorus gaz- Gazprom Contract	Avrasya gaz- Gazpro m Contract	
Date of Signature	14.01.1986	29.11.1999	19.02.1998	15.12.1997	08.08.1996	12.03.2001	14.04.1988	09.10.1995	21.05.1999	12.05.2007				TOTAL
2008	6.000	700	3.300	12.000	9.555	3.000	4.444	1.338		250	2.500	750	500	44.337
2009	6.000	230	3.770	14.000	9.555	5.000	4.444	1.338		250	2.500	750	500	48.337
2010	6.000		4.000	16.000	9.555	6.600	4.444	1.338		250	2.500	750	500	51.937
2011	6.000		4.000	16.000	9.555	6.600	4.444	1.338		250	2.500	750	500	51.937
2012			4.000	16.000	9.555	6.600	4.444	1.338		250	2.500	750	500	45.937
2013			4.000	16.000	9.555	6.600	4.444	1.338		250	2.500	750	500	45.937
2014			4.000	16.000	9.555	6.600	3.111	1.338		250	2.500	750	500	44.604
2015			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2016			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2017			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2018			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2019			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2020			4.000	16.000	9.555	6.600		1.338		250	2.500	750	500	41.493
2021			4.000	16.000	9.555	6.600				250	2.500	750	500	40.155
2022				16.000	9.555									25.555
2023				16.000	9.555									25.555
2024				16.000	9.555									25.555
2025				16.000	9.555									25.555
2026					9.555									9.555

Gazpromexport- BOTAŞ
contracts previously
transferred to third parties
as a result of gas release
program

Decree 725 of EMRA dated 13/4/2006

•Commercially impossible to execute!!!!!!!



Turkey's Entrance Points Contractual and Technical Capacities

DIRECTION	DELIVERY POINT	Maximum Capacities m3/day	Contactual Capacities (m3/day)
Blue Stream	DURUSU Entrance Point	35.516.581	36.128.255
EGEGAZ LNG	EGEGAZ ALIAGA LNG Send-out	14.112.000	14.112.000
IRAN -TURKEY Border	GÜRBULAK Entrance Point	28.595.963	29.088.449
BULGARIA-TURKEY Border	MALKOÇLAR Entrance Point	51.438.240	41.959.768
MARMARA EREĞLİSİ	MARMARA EREĞLİSİ LNG Send-out	22.050.000	22.050.000
TPAO AKÇAKOCA-ÇAYAĞZI PRODUCTION	AKÇAKOCA-ÇAYAĞZI Offshore Production Send-out	2.100.000	2.100.000
TPAO K.MARMARA-DEĞİRMENKÖY Underground Storage	Underground Storage Send-out	14.068.000	14.068.000
GEORGIA-TURKEY Border	TURKGOZU Entrance Point	14.156.199	14.156.199
TOTAL		182.036.983	173.662.671

- No interruptable Customers
- Any interruption causes serious problems
- No underground Storage

Measurement of Security of Supply

Measure	Physical Dimension	Economic Dimension
Dependence	Fuel Import Share of Product Supply ✧ Gross ✧ Net	✧ Value of Imports ✧ Fuel Import Value as % of Total Merchandise Value
Vulnerability	GENERAL ✧ Percent of World Imports ✧ Days Supply of Stocks SUPPLY SIDE MEASURE ✧ Diversity Index and concentration of supply ✧ Accessibility to supply DEMAND-SIDE MEASURE ✧ Fuel Used in Strategic sectors ✧ Power ✧ Transportation ✧ Fuel used per Capita	✧ Fuel Consumption per GDP ✧ Fuel Expenditure per GDP
Reliability	✧ Percentage of time that electricity is available for use ✧ Excess of generation capacity on effective consumption ✧ Electrification rate (number of people with access to electricity)	✧ Value of Investment

Diversity Index

- Shannon-Weiner Index (SW)

$$SW = -\sum_i X_i \ln X_i$$

X_i : the market share of supply country i

- The index increases as the number of different supply countries increases.
 - $0 \leq SW \leq 2,0$ Diversity should be considered.
 - $SW \leq 1$ ise Very risky from the point of security of supply
 - $SW > 2$ No risk from security of supply. None of source is dominant less risk
-

Adjusted Shannon Weiner-Neumann Index ($SW1$ and $SW2$)

$$SW1 = - \sum_i X_i \ln X_i b_i$$

where b_i represents an index of political stability of exporting country (0-100%)

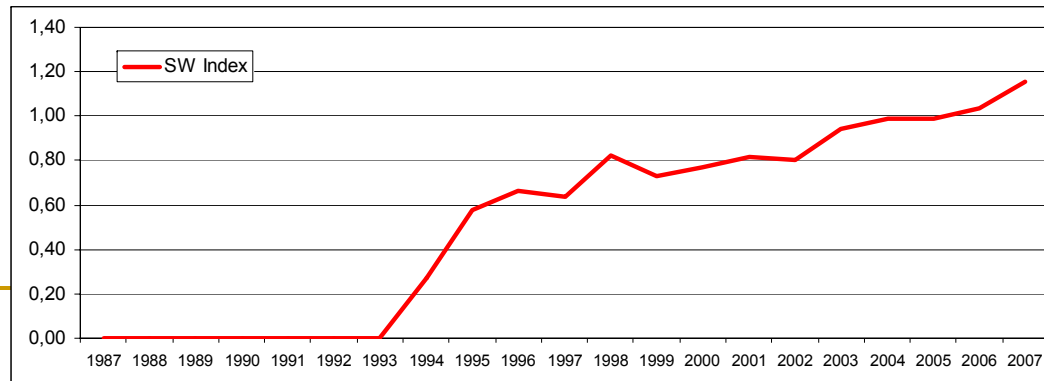
$$SW2 = \left(- \sum_i X_i \ln X_i b_i \right) (1 + g)$$

where g represents the share of indigenous production.

Share of Import Natural ve Shannon-Weiner Index (SW)

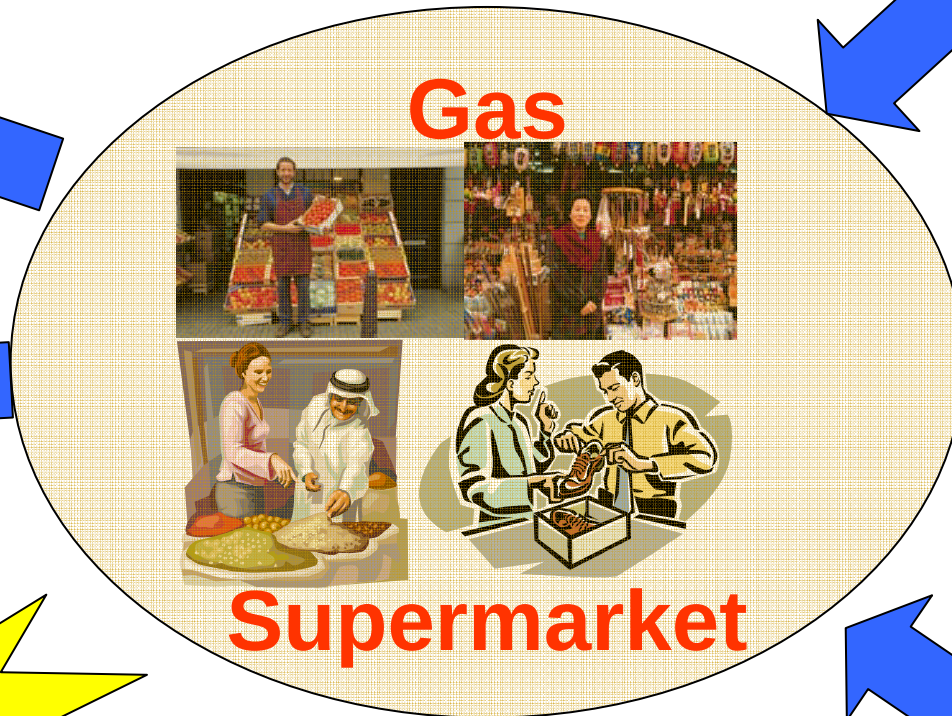
Shannon-Weiner-Neumann (SW2) Index

	Russian Fed (%)	Russian Fed (x ln(x))	Iran (%)	Iran (x ln(x))	Azerbaijan (%)	Azerbaijan (x ln(x))	Nigeria (%)	Nigeria (x ln(x))	Algeria (%)	Algeria (x ln(x))	SPOT LNG (%)	SPOT LNG (x ln(x))	SW Index	SW1 Index
1987	100,00%	0,00											0,00	0,00
1988	100,00%	0,00											0,00	0,00
1989	100,00%	0,00											0,00	0,00
1990	100,00%	0,00											0,00	0,00
1991	100,00%	0,00											0,00	0,00
1992	100,00%	0,00											0,00	0,00
1993	100,00%	0,00											0,00	0,00
1994	92,22%	0,07							7,78%	0,20			0,27	0,24
1995	81,07%	0,17							15,43%	0,29	3,50%	0,12	0,58	0,51
1996	68,71%	0,26							30,30%	0,36	1,00%	0,05	0,67	0,58
1997	66,58%	0,27							33,42%	0,37	0,00%		0,64	0,55
1998	63,89%	0,29							29,81%	0,36	6,29%	0,17	0,82	0,72
1999	70,34%	0,25					0,62%	0,03	26,35%	0,35	2,69%	0,10	0,73	0,63
2000	68,00%	0,26					5,26%	0,15	26,73%	0,35	0,00%		0,77	0,63
2001	66,78%	0,27					8,17%	0,20	24,35%	0,34	0,00%		0,82	0,66
2002	65,84%	0,28					7,23%	0,19	23,14%	0,34	0,00%		0,80	0,65
2003	59,82%	0,31	5,91%	0,17			5,31%	0,16	18,25%	0,31	0,00%		0,94	0,86
2004	64,69%	0,28	14,60%	0,28			4,66%	0,14	14,60%	0,28	0,00%		0,99	0,96
2005	65,95%	0,27	18,38%	0,31			3,81%	0,12	14,25%	0,28	0,00%		0,99	0,98
2006	63,92%	0,29	24,08%	0,34			3,64%	0,12	13,67%	0,27	0,26%	0,02	1,04	1,04
2007	63,50%	0,29	25,64%	0,35	3,51%	0,12	3,90%	0,13	11,73%	0,25	0,47%	0,03	1,16	1,16



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Can Turkey be a Hub?



Point where the suppliers
And buyers come
Together?

Can Turkey set
the financial trading
mechanism?



Turkey's position as a Hub

Strengths

- High gas demand makes Turkey a real physical market
- Excellent location on the transit routes
- Broad possible portfolio of suppliers
- High number of domestic and international buyers
- Almost mature financial system
- Emerging Turkish Derivatives Exchange
- Emerging economy
- Understanding energy market mechanism due to electricity market

Weakness

- Needs for necessary legislation change
 - Needs more investments for capacities
 - Transit capacities
 - Storage capacities
 - High energy prices increase the interference of government to market operations
 - Insufficient human resource
 - Insufficient performance of regulatory authority
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8. International Energy Arena-Istanbul

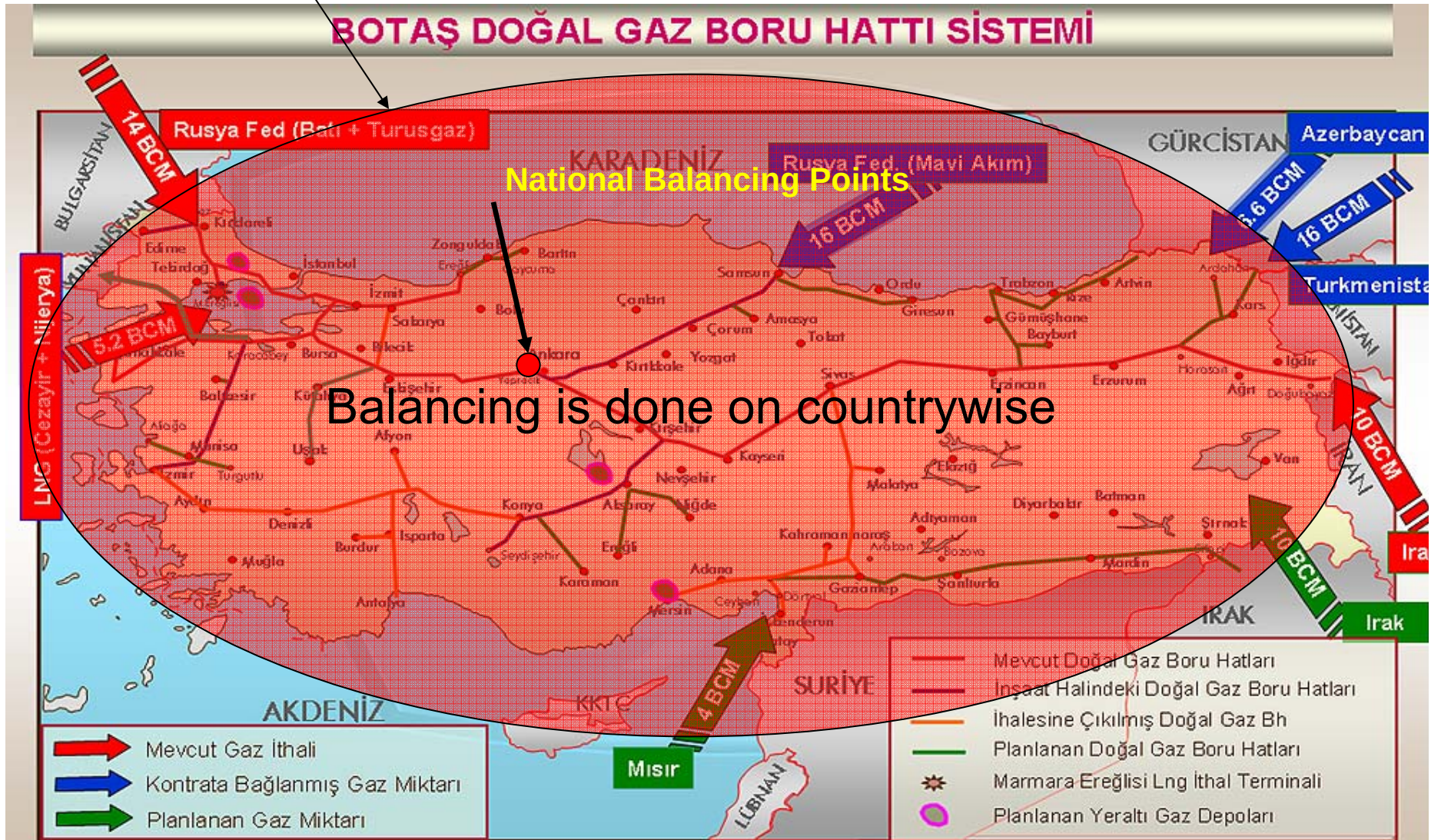
“Turkey’s position is favorable to establish a huge energy hub: But Turkey has to fetch the once-in-a-hundred-years opportunity”

*Johann GALLISTL
Head of International Pipeline Projects Unit
OMV Gas & Power GmH*

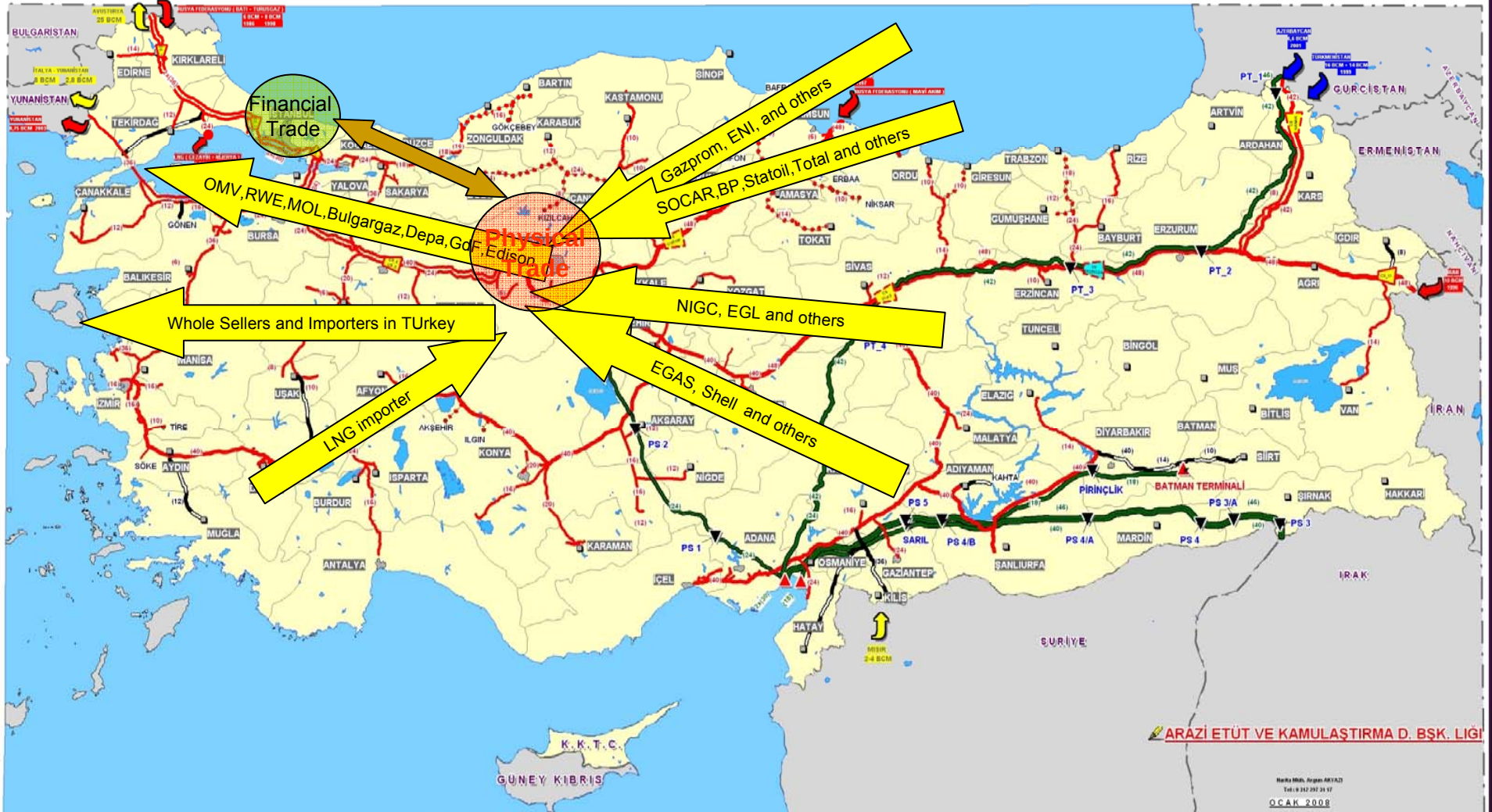
What is needed?

- Concept change in the Network Code (National Balancing Point)
 - Cancellation of Decree 725
 - Amendment of Natural Gas Market Law No 4646 for free import from every sources
 - Code of Practice of LNG terminals in Turkey
 - Restructuring of BOTAŞ and operation company for balancing system
 - Cooperation of BOTAŞ with Turkish Derivatives Market for standard contract development
 - Energy Transit Law
 - Active joining the Energy Community
-

Balancing Pool



BOTAŞ GENEL MÜDÜRLÜĞÜ
DOĞAL GAZ VE PETROL BORU HATLARI



MEVCUT DOĞAL GAZ BORU HATLARI

İNŞAAT AŞAMASINDAKİ
DOĞAL GAZ BORU HATTI



MEVCUT PETROL BORU HATLARI

PROJE, MÜHENDİSLİK VEYA
YAPIM İHALESİ AŞAMASINDAKİ
BORU HATLARI



CS. KOMPRESÖR İSTASYONLARI

İNŞAAT AŞAMASINDAKİ KOMPRESÖR İST.

İHALE AŞAMASINDAKİ KOMPRESÖR İST.



LNG

PETROL BORU HATTI POMPA İSTASYONU

BORU ÇAPI



MEVCUT GAZ İTHALI

KONTRATA BAĞLANMIŞ GAZ MİKTARI

PLANLANAN GAZ MİKTARI



BOTAŞ GENEL MÜDÜRLÜĞÜ
DOĞAL GAZ VE PETROL BORU HATLARI

National Balancing Point



ARAZİ ETÜD VE KAMULAŞTIRMA D. BŞK. LİĞİ

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OCAK 2008

MEVCUT DOĞAL GAZ BORU HATLARI

İNŞAAT AŞAMASINDAKİ
DOĞAL GAZ BORU HATTI

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MEVCUT PETROL BORU HATLARI

PROJE, MÜHENDİSLİK VEYA
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▼

LNG

PETROL BORU HATTI POMPA İSTASYONU

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BORU ÇAPI

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MEVCUT GAZ İTHALI

KONTRATA BAĞLANMIŞ GAZ MİKTARI

PLANLANAN GAZ MİKTARI

Transit Energy Law

- A kind of application law of Energy Charter Treaty ratified by Turkish Parliament
 - Clarification of Custom Law No 4458 and legislation about energy transits (continuous flow)
 - Article 37-50 of Custom Law is excluded for transit commodity
 - Custom Law No 4458 is difficult to execute for continuous flows and dynamic market and hub conditions
 - Responsibilities shall be defined for transit tariffs
 - EMRA responsibility
 - Long term and transparent tariff establishment to be monitored and approved by EMRA
 - Dispute resolution mechanism in line with Energy Charter Treaty.
 - Establishment of lose-it-or loose-it principle and third party access to all transportation energy lines
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Energy Community Treaty

Chapter II – Internal Energy Market

Article 41

- 1. Customs duties and quantitative restrictions on the import and export of Network Energy and all measures having equivalent effect, shall be prohibited between the Parties. This prohibition shall also apply to customs duties of a fiscal nature.
- 2. Paragraph 1 shall not preclude quantitative restrictions or measures having equivalent effect, justified on grounds of public policy or public security; the protection of health and life of humans, animals or plants, or the protection of industrial and commercial property. Such restrictions or measures shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between the Parties.

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Action Plan

