

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

**An Outlook to Turkish
Electricity Market in terms
of the Regulatory Framework**



**A Brief Report by
Prof. Dr. Osman SEVAIOĞLU**

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Privatized Regions (wrt Legislation: March 17, 2004)



- | | |
|-----------------------------------|--------------------------------------|
| 1. Dicle elektrik Dağıtım A.Ş. | 12. Uludağ Elektrik Dağıtım A.Ş. |
| 2. Vançölü Elektrik Dağıtım A.Ş. | 13. Trakya Elektrik Dağıtım A.Ş. |
| 3. Anas Elektrik Dağıtım A.Ş. | 14. İstanbul Elektrik Dağıtım A.Ş. |
| 4. Çoruh Elektrik Dağıtım A.Ş. | 15. Sakarya Elektrik Dağıtım A.Ş. |
| 5. Fırat Elektrik Dağıtım A.Ş. | 16. Osmangazi Elektrik Dağıtım A.Ş. |
| 6. Çamlıbel Elektrik Dağıtım A.Ş. | 17. Boğaziçi Elektrik Dağıtım A.Ş. |
| 7. Toroslar Elektrik Dağıtım A.Ş. | 18. Kayseri Elektrik Dağıtım A.Ş. |
| 8. Meram Elektrik Dağıtım A.Ş. | 19. Menderes Elektrik Dağıtım A.Ş. |
| 9. Başkent Elektrik Dağıtım A.Ş. | 20. Göksu Elektrik Dağıtım A.Ş. |
| 10. Akdeniz Elektrik Dağıtım A.Ş. | 21. Yeşilirmak Elektrik Dağıtım A.Ş. |
| 11. Gediz Elektrik A.Ş. | |



Brief History – Privatization Realized with respect to Law: 3096

Three of these regions have already been privatized according to the Law 3096 (Year: 1984),

- Aydem; Aydın, Muğla, Denizli,
- Kayseri; Kayseri,
- Göksu; Maraş, Adıyaman,

Brief History – Privatization Realized with respect to Law: 4046

12 of these regions have been privatized in 2008-2010;

- | | | |
|--------------------------------|---------------------------------|------------------------------|
| ○ Meram, | ○ Ayedaş^(*) | |
| ○ Başkent, | ○ Çamlıbel, | |
| ○ Sakarya, | ○ Fırat, | |
| ○ Osmangazi, | ○ Uludağ, | |
| ○ Yeşilırmak, | ○ Trakya, | |
| ○ Çoruh, | ○ Boğaziçi^(*) | 2.990.000.000 USD(**) |
| ○ Akdeniz^(*) | ○ Gediz^(*) | 1.920.000.000 USD |

 (*) *Bids for these regions have been withdrawn by bidders, due to the fact that the bids came out to be extremely high, and hence can not be financed by the banks ----- WINNER'S CURSE ----- A term from economics literature,*

(**) *Guarantee cash fired due to these withdrawals: 175.000.000 USD*





Brief History – Privatization Realized with respect to Law: 4046

The withdrawn regions have been offered to the bidders at the secondary, tertiary, fourth and fifth level levels, but they all refused to proceed.

These regions were then re-privatized in 2012-2013 with significantly lower values of bids, - *almost half of the earlier bids*-(*)

- Akdeniz
- Ayedaş
- Boğaziçi
- Gediz

() No compensation or penalty have been requested from the parties withdrawn*



Brief History – Privatization Realized with respect to Law: 4046

Tendering procedures have recently been completed in six regions.

- **Akdeniz,**
- **Dicle,**
- **Ayedaş,**
- **Toroslar,**
- **Vangölü,**
- **Aras**

These regions will be transferred to the companies by the end of July, 2013,

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Privatizations Realized according to Law 4046

Region	No. of Customers (Million)	Annual Sales (Billion kWh)	Privatization Payment (Million USD)	Payment/ Customer (USD)	Payment (Cent/kWh)	Company
Meram	1.483	5,426	440,0	296,7	8,10	Alarko -Cengiz
Başkent	2.951	9,966	1.225,0	415,1	12,29	Enerjisa
Sakarya	1.275	7,890	600,0	470,6	7,60	AkCez
Osmangazi	1.232	4,769	485,0	393,7	10,17	Eti Gumus
Yeşilirmak	1.429	3,830	441,5	309,0	11,50	Calik
Çoruh	959	2,096	227,0	236,7	10,83	Aksa
Çamlıbel	735	2,088	258,5	351,7	12,38	Limak - Kolin - Cengiz
Fırat	657	2,146	230,3	350,5	10,73	Aksa
Uludağ	2.265	10,941	940,0	415,0	8,59	Limak - Kolin - Cengiz
Trakya	790	5,781	575,0	728,1	9,95	IC Ictas
Boğaziçi	4.202	16,710	1.960,0	466,4	11,73	Limak - Kolin - Cengiz
Gediz	2.488	13,025	1.231,0	494,8	9,45	Elsan-Tümaş-Karaçay OGG
Privatization Completed			8.613,3			
Akdeniz	1.677	5,005	546,0	325,7	10,91	Limak - Kolin - Cengiz
Dicle	1.221	5,085	387,0	317,0	7,61	İşkaya-Doğu OGG
İstanbul Anadolu	2.389	7,799	1.227,0	513,6	15,73	Enerjisa
Toroslar	2.879	14,031	1.725,0	599,2	12,29	Enerjisa
Vangölü	459	1,620	118,0	257,1	7,28	Türkerler
Aras	725	1,655	128,5	177,2	7,76	Kiler
Agreement Completed			4.131,5			
General Total			12.744,8			

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Notes

- According to the new regulations in the New Electricity Law, enacted in March 2013, the retail and wholesale activities have been merged in a single commercial structure, under the title of «Supply Companies»,
- These companies shall carry out both the wholesale and retail activities,
- It is expected that these companies will be able to reach domestic end-customers as the eligibility limit will be reduced by EMRA^(*)

() Eligibility limits is now 5000 kWh/Year - → 613 kWh consumption / Month
↔ A rich domestic customer*

Negative Outcomes - Frustrations



- Although it differs somehow from region to region, no significant improvement have been observed in increasing the service quality and reducing the distribution system service charges,
- Although the distribution and retail activities have been accountally and legally unbundled at the end of 2012, ownerships of these companies are still hold within the hands of single commercial entity, thus eliminating competition in the retail level,
- Some companies carry significant risk of cancellation of concession agreements, since they failed to make payments for debts (at least one),

Negative Outcomes - Frustrations

Privatization tenders have been realized with the legislative preparations have not been fully completed, thus resulting a situation that the tendering parameters, such as loss and illicit utilization ratio, percentage of retail sales profit have to be revized later^(*)

(*) Examples:

- *Net profit granted to the companies has been raised from 2.33 % to 3.49 % in 2012 as a result of complaints made by the companies,*
- *Loss and illicit Utilization ratio have been revized (increased) in the six regions to be privatized*



Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience



Loss and Illicit Utilization Ratio (%) Original Table

	2011	2012	2013	2014	2015
DİCLE	60,96%	50,63%	42,06%	34,93%	29,01%
VANGÖLÜ	46,15%	38,33%	31,84%	26,45%	21,97%
ARAS	22,92%	19,04%	17,62%	16,30%	15,08%
ÇORUH	10,90%	10,39%	10,15%	10,15%	10,15%
FIRAT	12,69%	11,65%	11,11%	10,59%	10,09%
ÇAMLIBEL	7,72%	7,36%	7,02%	6,92%	6,92%
TOROSLAR	9,38%	8,94%	8,52%	8,12%	7,74%
MERAM	8,59%	8,28%	8,28%	8,28%	8,28%
BAŞKENT	8,46%	8,07%	7,88%	7,88%	7,88%
AKDENİZ	8,86%	8,45%	8,05%	8,02%	8,02%
GEDİZ	8,48%	8,08%	7,70%	7,34%	7,00%
ULUDAĞ	6,96%	6,90%	6,90%	6,90%	6,90%
TRAKYA	7,70%	7,70%	7,70%	7,70%	7,70%
AYEDAŞ	7,12%	6,79%	6,61%	6,61%	6,61%
SEDAŞ	7,66%	7,31%	6,96%	6,64%	6,33%
OSMANGAZİ	7,21%	7,21%	7,21%	7,21%	7,21%
BOĞAZİÇİ	9,12%	8,69%	8,28%	7,90%	7,57%
KAYSERİ	10,01%	10,01%	10,01%	10,01%	10,01%
AYDEM	9,80%	9,34%	8,90%	8,49%	8,09%
GÖKSU	10,03%	10,03%	10,03%	10,03%	10,03%
YEŞİLIRMAK	10,35%	9,87%	9,41%	8,97%	8,78%

Revized Table

	2013	2014	2015
DİCLE EDAŞ	71,07%	59,03%	49,03%
VANGÖLÜ EDAŞ	52,10%	43,27%	35,94%
ARAS EDAŞ	25,70%	21,35%	17,73%
TOROSLAR EDAŞ	11,80%	11,25%	10,72%
BOĞAZİÇİ EDAŞ	10,76%	10,26%	9,78%

Negative Outcomes - Frustrations

Most the companies do not yet have a perspective and plan for improving the service quality and reducing the loss and illicit utilization,

Government have put the objective of «Highest income from tenders» as the first priority, rather than «Highest performance in improving the service quality and reducing the loss and illicit utilization»,

Thus resulting in a situation that the loss and illicit utilization did not get reduced as aimed,



Notes



- Wholesale companies acting in the market can not be the shareholders of the distribution companies,
- Distribution company cannot deal with activities other than distribution,
- Meters are aimed to be transferred and owned, hired solely by the distribution companies,

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Utilization of Transformers

Şirketler / İller	Trafo Sayısı		Kurulu Gücü (MW)		Yanan Trafo Sayısı			Toplam Kurulu Güç (MVA)	Puant Gücü (MW)	Kapasite Kullanım Oranı (%)
	Şirket	3.Şahıs	Şirket	3.Şahıs	2010	2011	Artış/Azalış (%)			
Akdeniz EDAŞ Toplam	8.706	6.906	2.652,6	2.681,7	243	185	(23,9)	5.334,3	1.793,1	33,6
Aras EDAŞ Toplam	7.873	2.595	1.210,1	685,5	343	302	(12,0)	1.895,6	552,9	29,2
AYEDAŞ Toplam	4.144	1.424	3.648,8	1.623,9	38	30	(21,1)	5.272,7	1.795	34,0
Boğaziçi EDAŞ Toplam	7.558	4.671	9.790,5	4.314,3	95	85	(10,5)	14.104,8	6.305,0	44,7
Dicle EDAŞ Toplam	12.529	24.088	2.986,1	4.322,4	949	1.395	47,0	7.308,4	4.331,5	59,3
Gediz EDAŞ Toplam	12.164	12.661	6.332,3	4.495,4	424	302	(28,8)	10.827,7	3.184,6	29,4
Toroslar EDAŞ Toplam	16.684	19.830	5.008,0	4.556,1	357	401	12,3	9.564,0	3.197,6	33,4
Trakya EDAŞ Toplam	3.515	5.990	1.172,4	2.783,2	97	77	(20,6)	3.955,6	1.231,0	31,1
Vangölü EDAŞ Toplam	5.826	2.494	1.181,5	701,0	324	330	1,9	1.882,5	606,9	32,2
TEDAŞ Genel Toplamı	78.999	80.659	33.982,2	26.163,5	2.870	3.107	8,3	60.145,5	22.997,6	38,2

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Change in Technical and Non-Technical Losses

Dağıtım Şirketleri	2010 Yılı				2011 Yılı				Önceki Yıla Göre % Değişimler		
	Alınan (MWh)	Satılan (MWh)	Kayıp ve Kaçak (MWh)	Kayıp ve Kaçak	Alınan (MWh)	Satılan (MWh)	Kayıp ve Kaçak (MWh)	Kayıp ve Kaçak	Alınanda	Satılarda	Kayıp ve Kaçakta
Diyarbakır	4054.381	1.195.375	2.859.006	70,5	4.624.814	1.282.682	3.342.132	72,3	14,1	7,3	16,9
Mardin	3.839.604	1.017.020	2.822.584	73,5	3.957.734	946.366	3.011.368	76,1	3,1	(6,9)	6,7
Silirt	513.250	291.090	222.161	43,3	556.163	285.953	270.211	48,6	8,4	(1,8)	21,6
Ş.Urfa	5534.248	2.477.374	3.056.874	55,2	5.765.910	1.869.421	3.896.489	67,6	4,2	(24,5)	27,5
Batman	1.302.904	463.477	839.427	64,4	1.526.848	456.847	1.070.001	70,1	17,2	(1,4)	27,5
Şırnak	1.209.280	273.167	936.112	77,4	1.329.449	244.104	1.085.345	81,6	9,9	(10,6)	15,9
Dicle EDAŞ	16.453.666	5.717.503	10.736.163	65,3	17.760.919	5.085.372	12.675.547	71,4	7,9	(11,1)	18,1
Bitlis	399.496	216.268	183.228	45,9	507.626	238.820	268.805	53,0	27,1	10,4	46,7
Hakkari	490.483	123.525	366.958	74,8	559.821	140.677	419.144	74,9	14,1	13,9	14,2
Muş	530.280	228.137	302.143	57,0	551.041	257.691	293.350	53,2	3,9	13,0	(2,9)
Van	1.572.126	714.303	857.823	54,6	1.762.896	982.528	780.368	44,3	12,1	37,6	(9,0)
Vanğölü EDAŞ	2.992.385	1.282.232	1.710.152	57,2	3.381.384	1.619.716	1.761.668	52,1	13,0	26,3	3,0
Ağrı	654.509	305.686	348.823	53,3	728.070	332.509	395.561	54,3	11,2	8,8	13,4
Erzincan	268.925	255.820	13.105	4,9	299.958	281.924	18.034	6,0	11,5	10,2	37,6
Erzurum	837.306	733.002	104.304	12,5	896.915	792.875	104.040	11,6	7,1	8,2	(0,3)
Kars	337.043	263.103	73.940	21,9	355.351	263.964	91.386	25,7	5,4	0,3	23,6
Bayburt	77.497	69.057	8.440	10,9	83.128	72.968	10.160	12,2	7,3	5,7	20,4
Ardahan	89.758	81.769	7.989	8,9	95.274	86.962	8.312	8,7	6,1	6,4	4,0
Iğdır	174.999	106.451	68.548	39,2	191.290	118.580	72.710	38,0	9,3	11,4	6,1

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Change in Technical and Non-Technical Losses

Dağıtım Şirketleri	2010 Yılı				2011 Yılı				Önceki Yıla Göre % Değişimler		
	Alınan (MWh)	Satılan (MWh)	Kayıp ve Kaçak (MWh)	Kayıp ve Kaçak	Alınan (MWh)	Satılan (MWh)	Kayıp ve Kaçak (MWh)	Kayıp ve Kaçak	Alınanda	Satılarda	Kayıp ve Kaçakta
Aras EDAŞ	2440.036	1814.888	625.148	25,6	2649.986	1949.782	700.204	26,4	8,6	7,4	12,0
Adana	3684.665	3371.934	312.731	8,5	3635.091	3149.403	485.687	13,4	(1,3)	(6,6)	55,3
Gaziantep	4169.326	3877.336	291.991	7,0	4451.988	4095.553	356.435	8,0	6,8	5,6	22,1
Hatay	3803.266	3506.663	296.603	7,8	4026.208	3587.180	439.028	10,9	5,9	2,3	48,0
Mersin	3031.500	2704.183	327.317	10,8	3062.246	2626.510	435.736	14,2	1,0	(2,9)	33,1
Kilis	138.185	127.389	10.796	7,8	147.286	134.729	12.558	8,5	6,6	5,8	16,3
Osmaniye	1218.099	1189.736	28.364	2,3	474.943	437.936	37.007	7,8	(61,0)	(63,2)	30,5
Toroslar EDAŞ	16.045.043	14.777.241	1.267.801	7,9	15.797.762	14.031.311	1.766.451	11,2	(1,5)	(5,0)	39,3
Antalya	4388.710	3886.163	502.547	11,5	4286.439	3774.233	512.205	11,9	(2,3)	(2,9)	1,9
Burdur	775.979	734.384	41.594	5,4	626.254	579.971	46.282	7,4	(19,3)	(21,0)	11,3
İsparta	779.828	733.289	46.538	6,0	711.344	650.976	60.368	8,5	(8,8)	(11,2)	29,7
Akdeniz EDAŞ	5944.517	5353.837	590.680	9,9	5624.037	5005.181	618.856	11,0	(5,4)	(6,5)	4,8
İzmir	11365.866	10511.933	853.933	7,5	11740.041	10832.554	907.487	7,7	3,3	3,1	6,3
Manisa	2330.734	2158.993	171.741	7,4	2432.429	2192.643	239.786	9,9	4,4	1,6	39,6
Gediz EDAŞ	13.696.600	12.670.926	1.025.674	7,5	14.172.470	13.025.197	1.147.273	8,1	3,5	2,8	11,9
Edirne	1017.155	984.455	82.700	8,1	1059.143	968.904	90.239	8,5	4,1	3,7	9,1
Kırklareli	1192.450	1115.094	77.355	6,5	1357.216	1273.221	83.994	6,2	13,8	14,2	8,6
Tekirdağ	3119.461	2914.652	204.808	6,6	2994.452	2715.317	279.135	9,3	(4,0)	(6,8)	36,3
Trakya EDAŞ	5329.066	4964.202	364.864	6,8	5410.811	4957.442	453.369	8,4	1,5	(0,1)	24,3
AYEDAŞ	8611.700	8016.173	595.527	6,9	8504.850	7799.061	705.789	8,3	(1,2)	(2,7)	18,5
Boğaziçi EDAŞ	19.400.963	17.287.997	2.112.966	10,9	19.184.186	16.710.163	2.474.023	12,9	(1,1)	(3,3)	17,1
TEDAŞ Toplamı	90.913.975	71.885.000	19.028.975	20,9	92.486.404	70.183.225	22.303.179	24,1	1,7	(2,4)	17,2

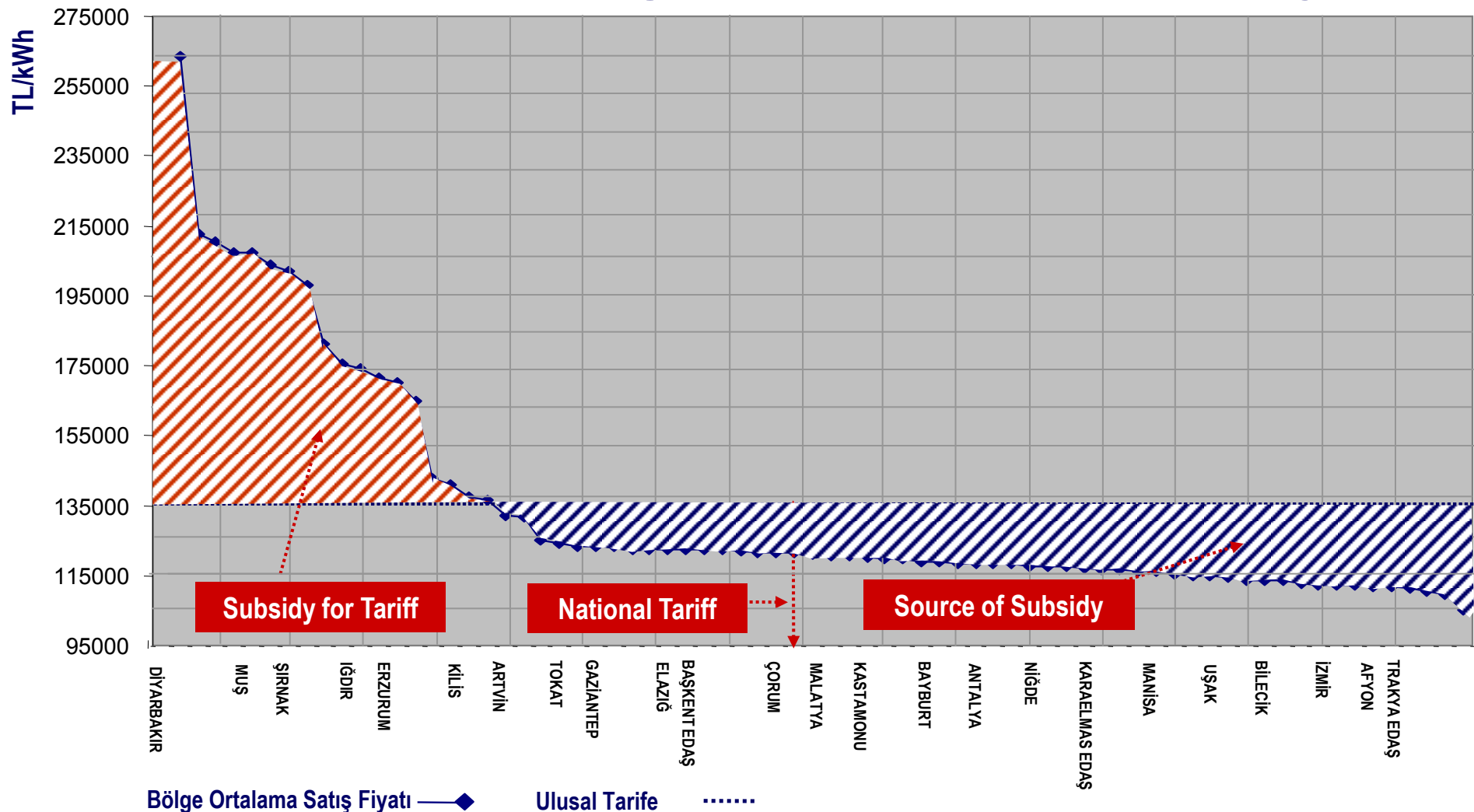
Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Change in MV Interruptions

Şirketler/İller	Yıl	OG Arızaları						AG Arızaları	
		Programlı Kesinti		Programsız Kesinti		Toplam Kesinti			
		Adet	Saat	Adet	Saat	Adet	Saat	Adet	Saat
Akdeniz EDAŞ Toplam	2010	634	1.648	3.989	6.882	4.679	8.561	35.928	31.722
	2011	410	1.795	4.879	5.298	5.354	7.128	13.043	15.949
Aras EDAŞ Toplam	2010	692	2.778	15.096	18.356	15.788	21.134	45.082	51.864
	2011	937	2.599	22.510	22.639	23.447	25.238	37.408	42.460
Ayedaş Toplam	2010	2.515	4.450	6.528	2.436	9.043	6.886	50.425	28.303
	2011	2.860	4.502	4.928	2.190	7.788	6.692	41.814	24.284
Boğaziçi EDAŞ Toplam	2010	216	424	11.495	22.597	11.711	23.021	99.408	119.289
	2011	622	276	7.318	7.331	7.940	10.092	117.382	140.858
Dicle EDAŞ Toplam	2010	11.051	28.503	103.117	29.523	114.132	58.026	150.264	60.050
	2011	15.002	27.660	125.219	46.837	140.261	73.397	156.623	64.662
Gediz EDAŞ Toplam	2010	2.563	12.767	16.704	28.409	19.267	41.176	20.278	70.057
	2011	3.679	23.406	21.345	64.875	25.024	88.281	16.691	28.183
Toroslar EDAŞ Toplam	2010	1.402	3.385	17.887	13.464	19.289	16.849	56.456	32.352
	2011	1.582	3.194	16.685	14.895	18.267	18.088	50.860	33.471
Trakya EDAŞ Toplam	2010	1.195	3.158	19.164	16.585	20.359	19.743	46.814	15.495
	2011	1.033	2.548	16.406	15.790	17.439	18.338	50.359	19.336
Vangölü EDAŞ Toplam	2010	3.397	4.613	16.296	17.315	19.693	21.928	33.037	36.697
	2011	3.886	5.900	14.893	15.720	18.779	21.620	37.376	36.519
TEDAŞ Genel Toplamı	2010	23.665	61.726	210.276	155.567	233.961	217.324	537.692	445.829
	2011	30.011	71.880	234.183	195.575	264.299	268.875	521.556	405.722

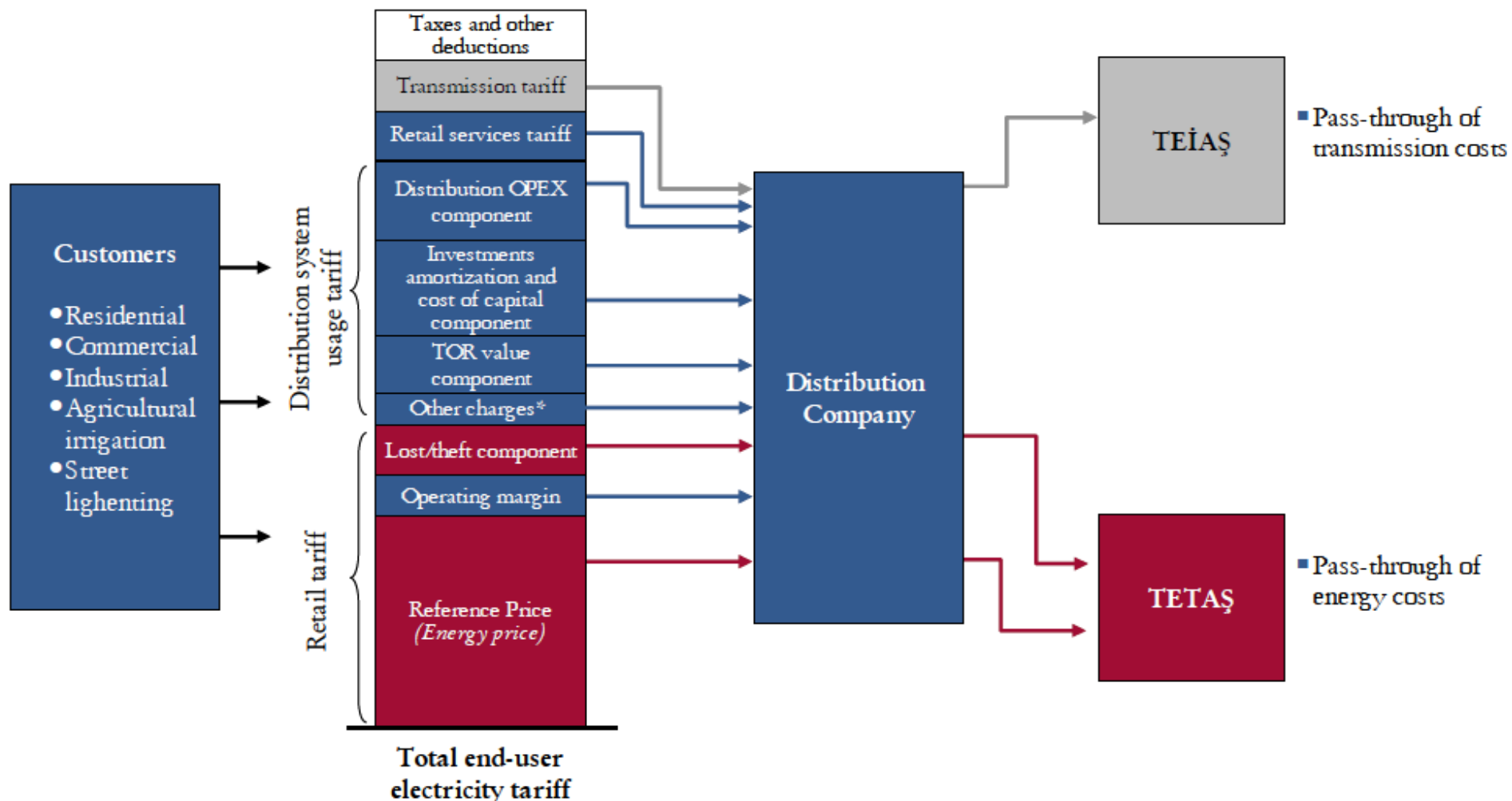
Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Tariff Balancing Mechanism with no Subsidy



Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

End-Customer Tariff – Cash Flow



Retail Service Charge

Retail Services Revenue Cap;

- **Meter Reading Service Cost,**
- **Billing Service Cost,**
- **Other, such as disconnection and connection service costs,**

Retail Services Charge (Cent/kWh);

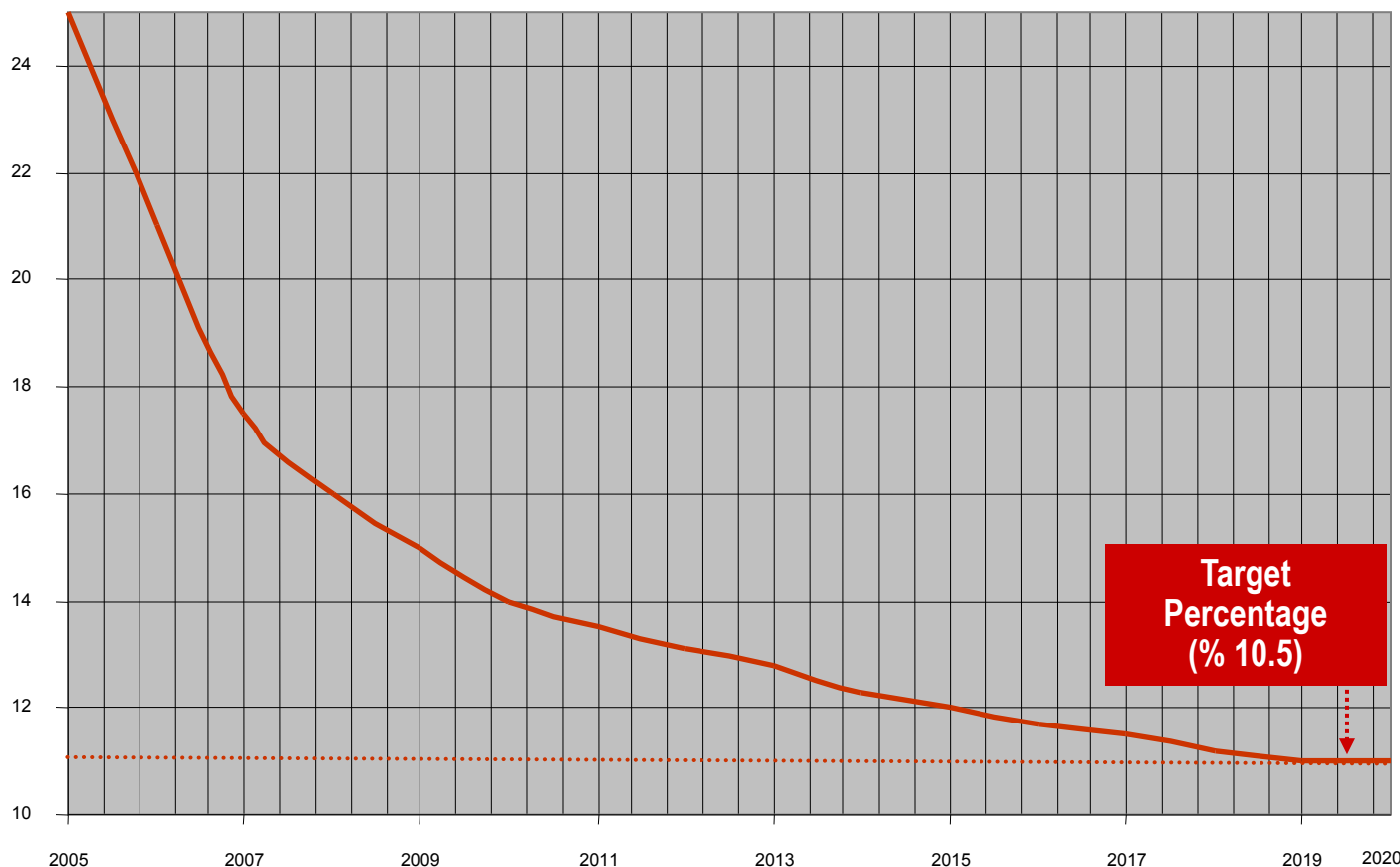
Retail Services Revenue Cap / Electricity distributed in the Region



Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Possible Risks

Profile of Istanbul Electricity Distribution Region



Loss and Illicit Utilization Ratio (%)

2005	25
2006	21
2007	17,4
2008	16
2009	15
2010	14
2011	13,5
2012	13,2
2013	13
2014	12,5
2015	12
2016	11,7
2017	11,5
2018	11,2
2019	11
2020	10,5

Privatization of the Turkish Electricity Distribution Sector, A Brief Report on the Turkish Experience

Possible Risks

Profile of Istanbul Electricity Distribution Region

Loss and Illicit
Utilization Ratio (%)

