

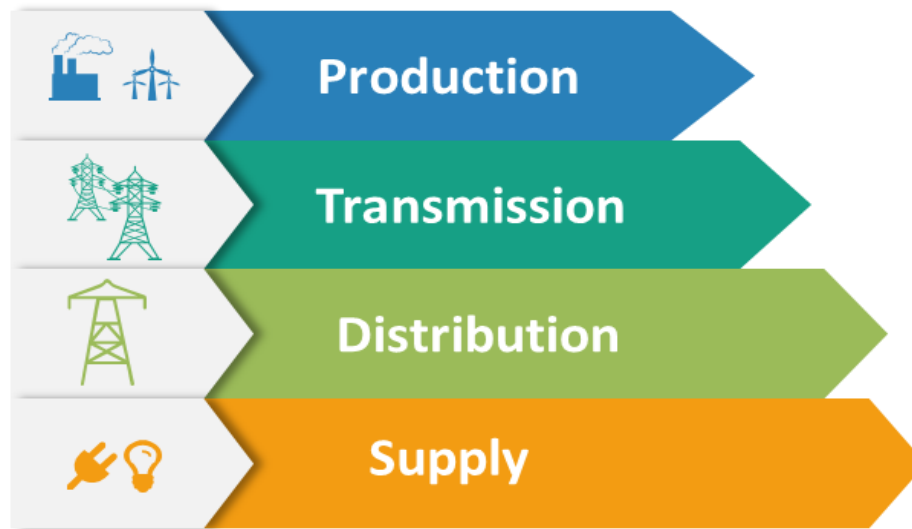


Security of Supply CG - 7th Meeting of Sub-Group for Electricity

Winter Outlook Report 2019/2020

KOSOVO

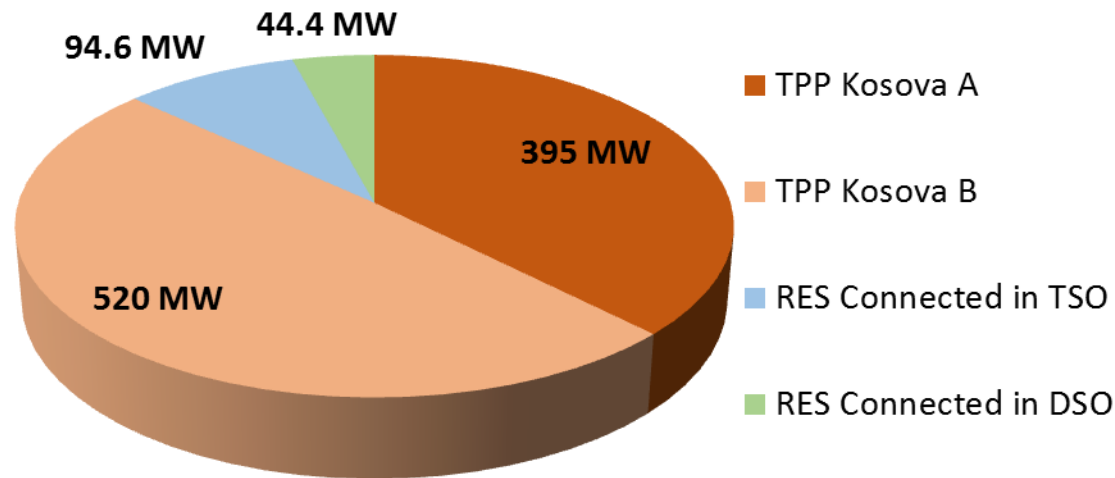
Content



General note: During the period were not occurred any unusual issue in terms of SoS

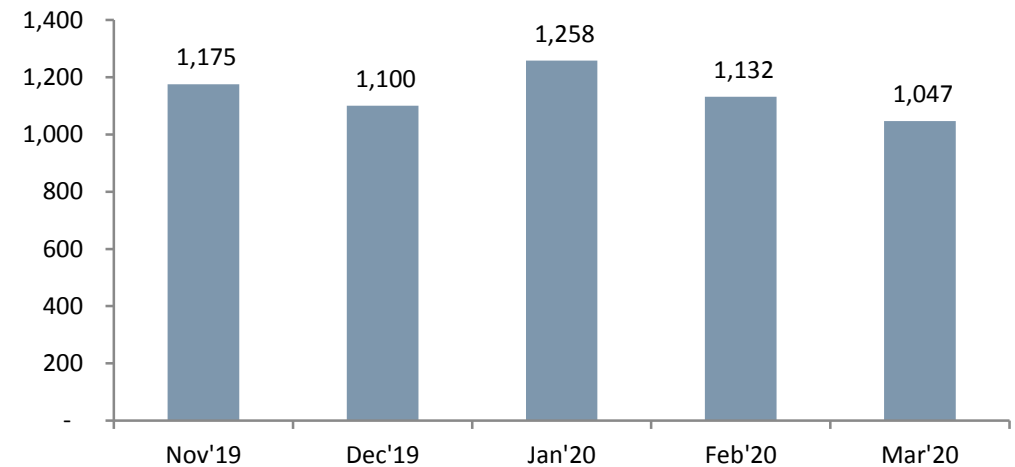
Installed/Available Capacity vs Peak demand

Generating Available Capacities 2019



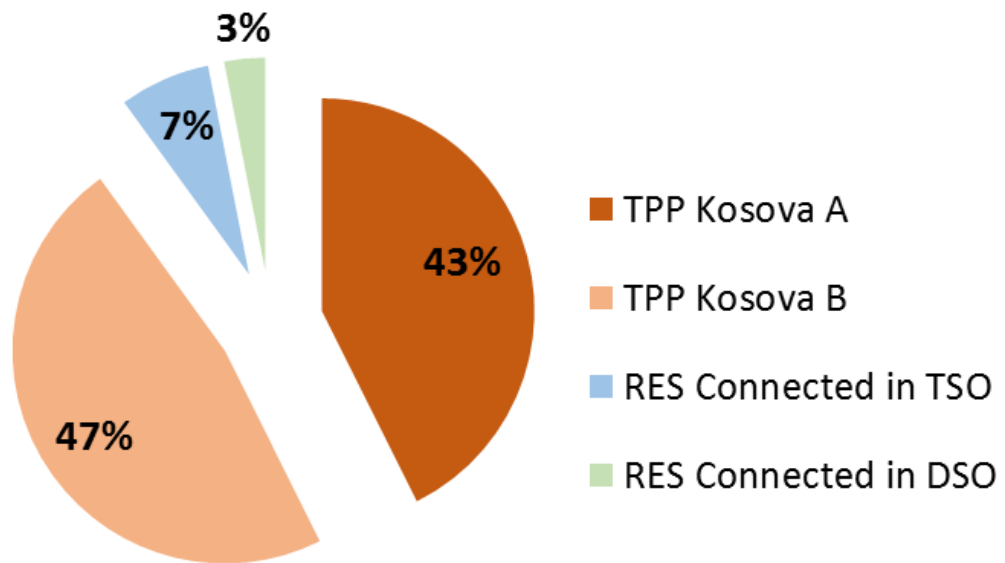
Actual installed capacity 1,416MW
Actual available capacity 1,054MW

Five maximal system peaks winter season 2019/2020



Import during winter peak demand

Generation capacity resources by types



RES Activities

Since November 2019 Connection application in KOSTT:

- 443 MW Wind,
- 30 MW Solar,
- 10 MW HPP

Under Construction 105 MW Wind Park and 10 MW HPP

- 90% of generation capacity is from Thermal Power Plants (PP Kosova A and PP Kosova B)
- Share of RES Capacities will increase in near future

Supply and Consumption 2019 and 2019/2020 winter season (1)

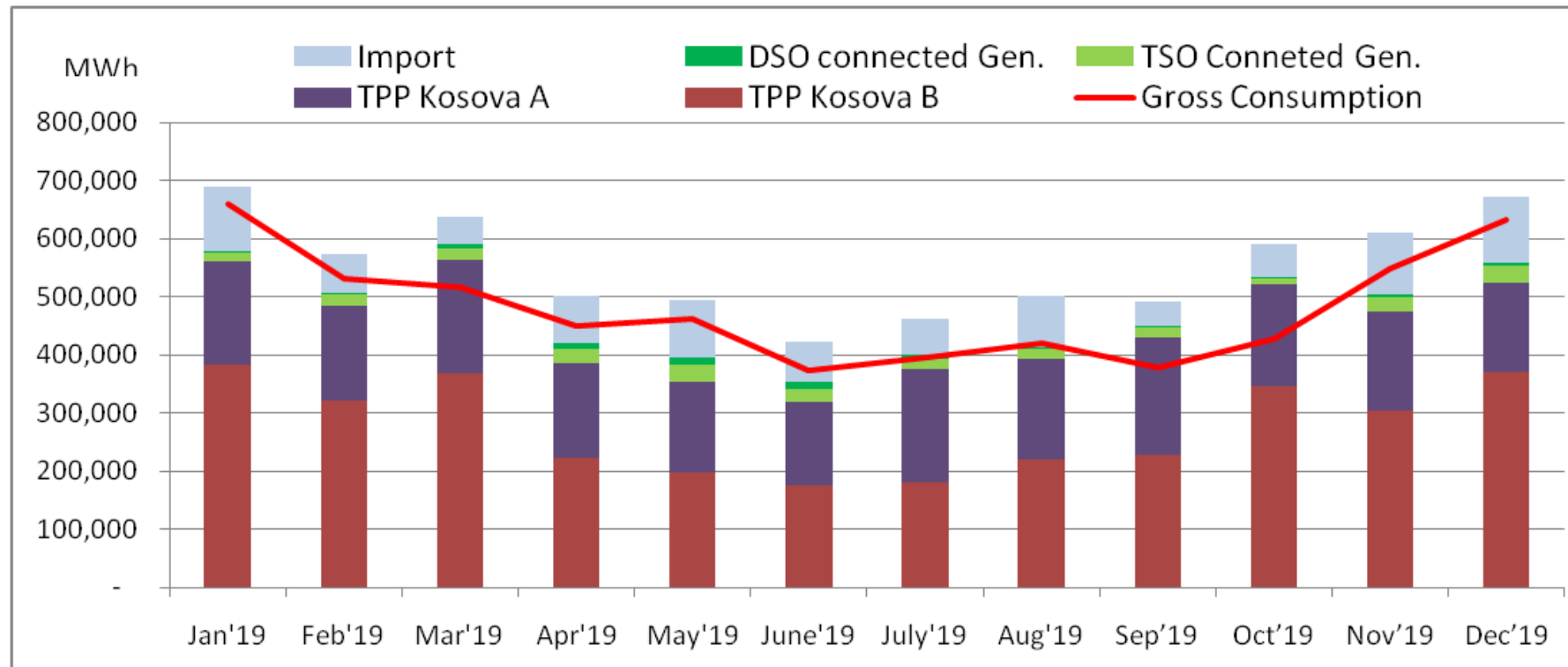
| Description MWh | Total | Jan'19 | Feb'19 | Mar'19 | Apr'19 | May'19 | June'19 | July'19 | Aug'19 | Sep'19 | Oct'19 | Nov'19 | Dec'19 |
|--------------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| TPP Kosova A | 2,061,553 | 178,755 | 162,344 | 193,323 | 162,358 | 155,944 | 141,578 | 195,615 | 171,152 | 201,620 | 175,398 | 170,228 | 153,238 |
| TPP Kosova B | 3,319,954 | 382,358 | 322,109 | 369,011 | 222,650 | 197,540 | 176,243 | 180,736 | 220,903 | 227,459 | 346,223 | 303,943 | 370,778 |
| TSO Conneted Gen. | 252,268 | 15,657 | 18,842 | 21,596 | 25,954 | 29,632 | 23,395 | 17,842 | 18,277 | 17,989 | 9,821 | 24,020 | 29,242 |
| DSO connected Gen. | 66,906 | 1,540 | 3,430 | 5,774 | 8,759 | 12,388 | 12,259 | 5,613 | 3,184 | 2,150 | 2,087 | 5,086 | 4,637 |
| Import | 944,227 | 110,407 | 67,644 | 47,474 | 82,430 | 99,826 | 68,856 | 61,863 | 86,865 | 42,451 | 56,510 | 107,090 | 112,811 |
| Total | 6,644,908 | 688,716 | 574,369 | 637,178 | 502,152 | 495,329 | 422,332 | 461,669 | 500,381 | 491,669 | 590,040 | 610,367 | 670,706 |
| Gross Consumption | 5,797,032 | 660,721 | 531,886 | 515,611 | 449,219 | 463,282 | 372,710 | 396,484 | 421,351 | 377,218 | 426,830 | 548,747 | 632,973 |
| Export | 847,876 | 27,995 | 42,483 | 121,567 | 52,933 | 32,047 | 49,622 | 65,185 | 79,030 | 114,451 | 163,210 | 61,620 | 37,733 |

- Actual generation is higher 2.5% than forecast
- Steady coal exploration and level of reserves is according to the plan
- Around 14% of the energy is secured from import, whereas export is around 11%
- Capital overhaul of B2 unit of the TPP Kosova B has been done in 2019 (April-August)

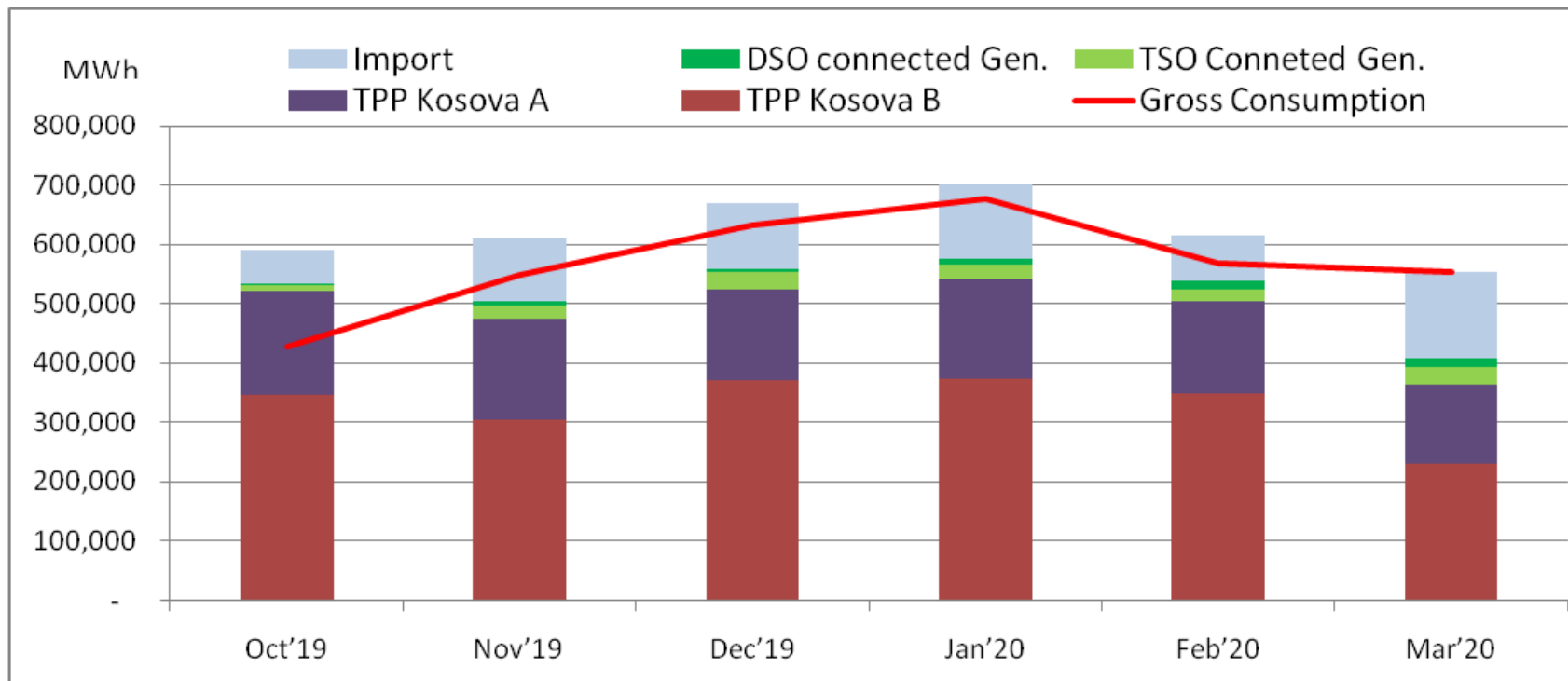
Supply and Consumption 2019 and 2019/2020 winter season (2)

| Description MWh | Total | Oct'19 | Nov'19 | Dec'19 | Jan'20 | Feb'20 | Mar'20 |
|--------------------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| TPP Kosova A | 953,864 | 175,398 | 170,228 | 153,238 | 168,000 | 155,000 | 132,000 |
| TPP Kosova B | 1,975,664 | 346,223 | 303,943 | 370,778 | 374,400 | 349,440 | 230,880 |
| TSO Conneted Gen. | 135,375 | 9,821 | 24,020 | 29,242 | 22,604 | 20,350 | 29,338 |
| DSO connected Gen. | 52,461 | 2,087 | 5,086 | 4,637 | 9,847 | 13,897 | 16,907 |
| Import | 622,515 | 56,510 | 107,090 | 112,811 | 126,090 | 75,639 | 144,375 |
| Total | 3,739,880 | 590,040 | 610,367 | 670,706 | 700,941 | 614,326 | 553,500 |
| Gross Consumption | 3,407,730 | 426,830 | 548,747 | 632,973 | 677,017 | 568,893 | 553,271 |
| Export | 332,150 | 163,210 | 61,620 | 37,733 | 23,925 | 45,433 | 229 |

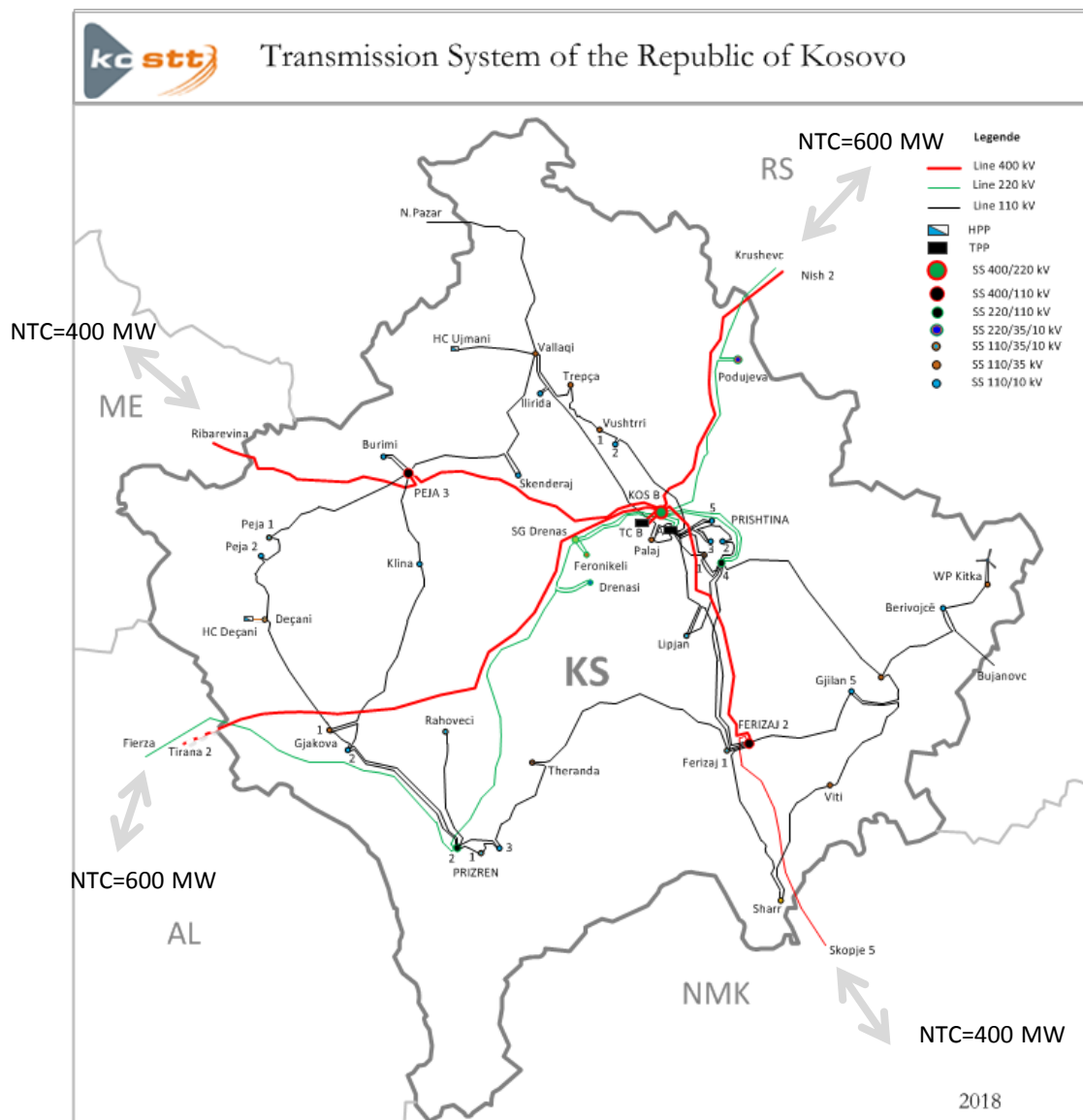
Supply and Consumption 2019



Supply and Consumption winter 2019/2020



KOSTT main infrastructure and system data (actual)



Transmission lines

| HV Lines in KOSTT | Line length [km] |
|-------------------|------------------|
| 400 kV | 279.7 |
| 220 kV | 240.8 |
| 110 kV | 856.7 |

Total line length =1377 km

Power Transformers and Substations

| | |
|----------------------------|-----------------|
| Autotransformers | 3750 MVA |
| Transformers | 2240 MVA |
| Main HV Substations | 6 |
| Load Substations | 30 |

Peak load last three years and forecast for 2019- 2020

| Y-2016 | Y-2017 | Y-2018 | Y-2019 | Y-2020 |
|---------|---------|---------|---------|---------|
| 1160 MW | 1161 MW | 1201 MW | 1178 MW | 1258 MW |

Electricity demand last three years and forecast for 2019-2020

| Y-2016 | Y-2017 | Y-2018 | Y-2019 | Y-2020 |
|----------|----------|----------|-----------|-----------|
| 5.43 TWh | 5.78 TWh | 5.78 TWh | 6.073 TWh | 6.093 TWh |

Transmission operations facts (1)

➤ **KOSTT - ENTSO-E activities**

- The Agreement signed for establishment of Control Block AK (OST/KOSTT)
- SAFA evaluation KOSTT - ENTSO-E
- Transposing of Grid Codes (Connection Code for Generation and Demand is transposed)

➤ **Interconnection 400kV line with Albania**

- Non-operation of since 2016 reducing the possibility of exporting or importing electricity to Albania
- Financial impact (loss of revenues)
- Constrains for Market Integration
- Line will support security of regional transmission network

Transmission operations facts (2)

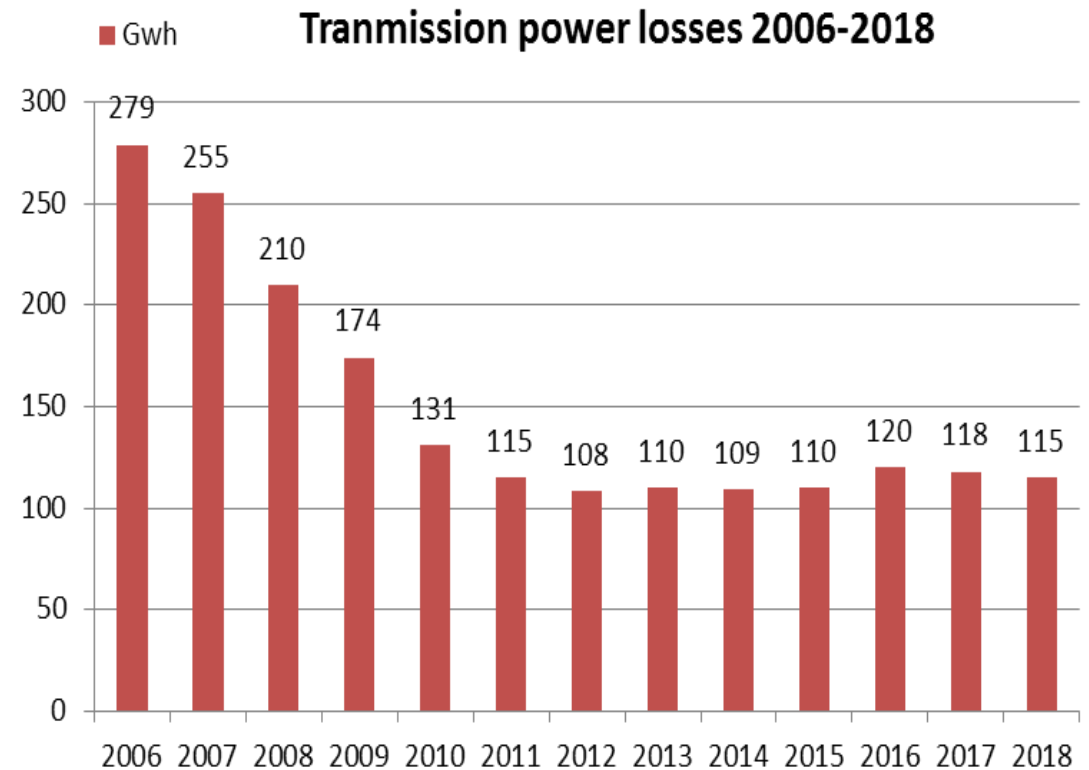
Network

- Strong interconnection Capacity/Peak= 4.82
- Well Interconnected with neighbouring TSO-s (four 400 kV and two 220 kV lines)
- N-1 criterion is fulfilled for entire HV network
- Significantly reduction of ENS caused by transmission system
- Supporting industrial load growth and RES integration
- Transmission losses 1.98 % in 2018

TSO Developments 2019

Three new substations:

- 220/10(20)kV; 2x40MVA (Commissioned)
- 110/10 (20)kV; 2x40MVA (Commissioned)
- 110/10 (20)kV; 2x40MVA (Commissioned)
- 110 kV line 16 km under construction



Distribution (1)

Total EED is expected to be increased by 6%, whereas technical and commercial losses are expected to be reduced by ~2.3%

| MWh | Total | Jan'19 | Feb'19 | Mar'19 | Apr'19 | May'19 | June'19 | July'19 | Aug'19 | Sep'19 | Oct'19 | Nov'19 | Dec'19 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| EED (without UE) | 5,226,186 | 633,129 | 515,867 | 485,515 | 420,106 | 406,102 | 337,905 | 359,745 | 371,582 | 338,372 | 392,928 | 437,573 | 527,362 |
| Technical losses | 701,493 | 103,560 | 71,823 | 63,438 | 52,167 | 46,374 | 35,216 | 37,250 | 37,176 | 35,986 | 46,739 | 72,962 | 98,802 |
| Commercial losses | 404,761 | 62,886 | 66,228 | 41,428 | 36,553 | 32,414 | 10,678 | 12,806 | 8,031 | 13,312 | 21,319 | 42,099 | 57,008 |
| Consumption | 4,119,931 | 466,683 | 377,816 | 380,649 | 331,385 | 327,314 | 292,011 | 309,689 | 326,375 | 289,074 | 324,870 | 322,512 | 371,552 |
| Technical losses % | 13.42% | 16.4% | 13.9% | 13.1% | 12.4% | 11.4% | 10.4% | 10.4% | 10.0% | 10.6% | 11.9% | 16.7% | 18.7% |
| Commercial losses % | 7.74% | 9.9% | 12.8% | 8.5% | 8.7% | 8.0% | 3.2% | 3.6% | 2.2% | 3.9% | 5.4% | 9.6% | 10.8% |
| Unbilled supply | 288,708 | 42,128 | 34,916 | 31,249 | 24,176 | 21,815 | 12,760 | 11,439 | 11,470 | 14,324 | 22,860 | 27,094 | 34,475 |
| EED including Unbilled | 5,514,895 | 675,257 | 550,783 | 516,764 | 444,281 | 427,918 | 350,665 | 371,184 | 383,052 | 352,697 | 415,788 | 464,667 | 561,837 |
| Unbilled supply % | 5.2% | 6.2% | 6.3% | 6.0% | 5.4% | 5.1% | 3.6% | 3.1% | 3.0% | 4.1% | 5.5% | 5.8% | 6.1% |
| Technical losses.icl UE | 12.72% | 15.34% | 13.04% | 12.28% | 11.74% | 10.84% | 10.04% | 10.04% | 9.71% | 10.20% | 11.24% | 15.70% | 17.59% |
| Commercial losses.icl UE | 7.3% | 9.3% | 12.0% | 8.0% | 8.2% | 7.6% | 3.0% | 3.5% | 2.1% | 3.8% | 5.1% | 9.1% | 10.1% |
| Total technical & comm. Losses | 20.06% | 24.65% | 25.06% | 20.29% | 19.97% | 18.41% | 13.09% | 13.49% | 11.80% | 13.98% | 16.37% | 24.76% | 27.73% |

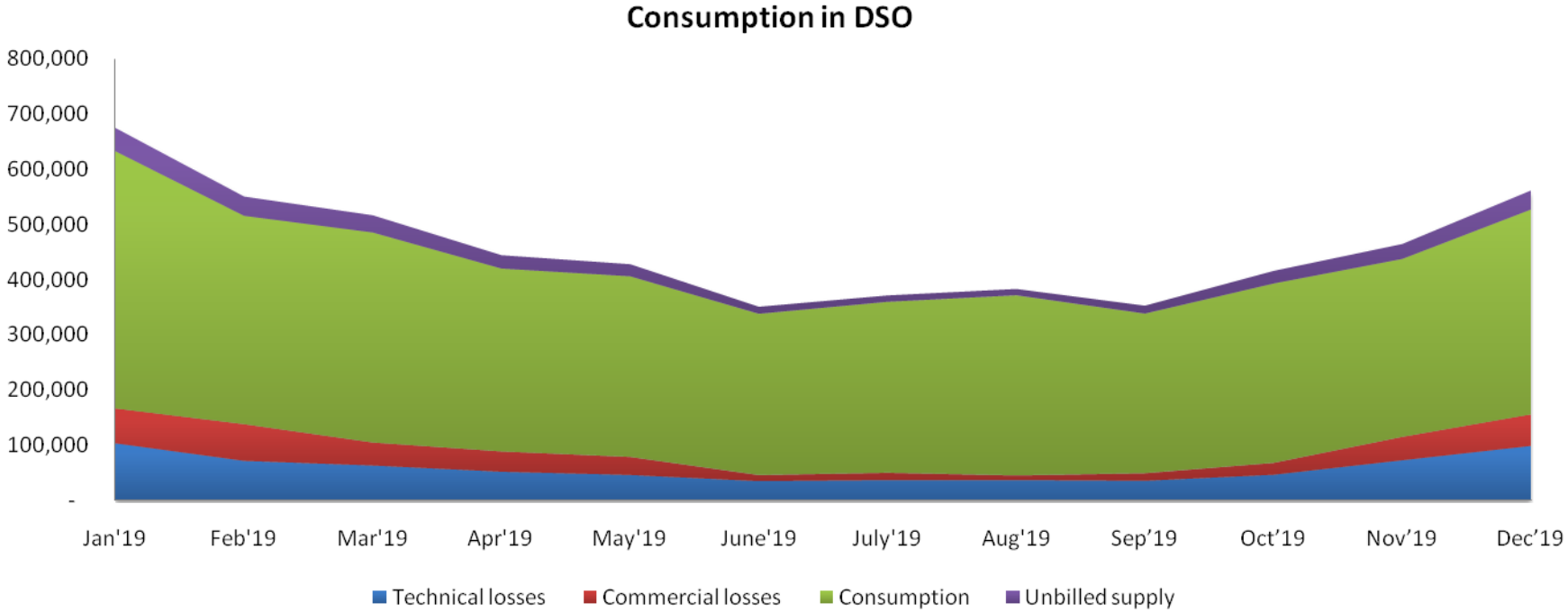
Unbilled supplies (political losses ~ 5 %)

Distribution winter outlook 2019/2020 (2)

| MWh | Total | Oct'19 | Nov'19 | Dec'19 | Jan'20 | Feb'20 | Mar'20 |
|------------------------|-----------|---------|---------|---------|---------|---------|---------|
| EED (without UE) | 2,447,418 | 380,232 | 437,573 | 527,362 | 602,518 | 499,733 | 481,019 |
| Technical losses | 360,059 | 51,953 | 57,531 | 77,905 | 100,280 | 72,390 | 62,700 |
| Commercial losses | 307,606 | 41,583 | 57,531 | 77,905 | 64,005 | 66,582 | 35,640 |
| Consumption | 1,779,753 | 286,696 | 322,512 | 371,551 | 438,232 | 360,762 | 382,679 |
| | | | | | | | |
| Technical losses % | 14.7% | 13.7% | 13.1% | 14.8% | 16.6% | 14.5% | 13.0% |
| Commercial losses % | 12.6% | 10.9% | 13.1% | 14.8% | 10.6% | 13.3% | 7.4% |
| | | | | | | | |
| Unbilled supply | 152,755 | 21,590 | 27,094 | 34,475 | 38,092 | 31,504 | 30,534 |
| EED including Unbilled | 2,600,173 | 401,822 | 464,667 | 561,837 | 640,610 | 531,238 | 511,554 |
| Unbilled supply % | 5.9% | 5.4% | 5.8% | 6.1% | 5.9% | 5.9% | 6.0% |

Technical and commercial losses are expected to be reduced by ~2%

Distribution (2)

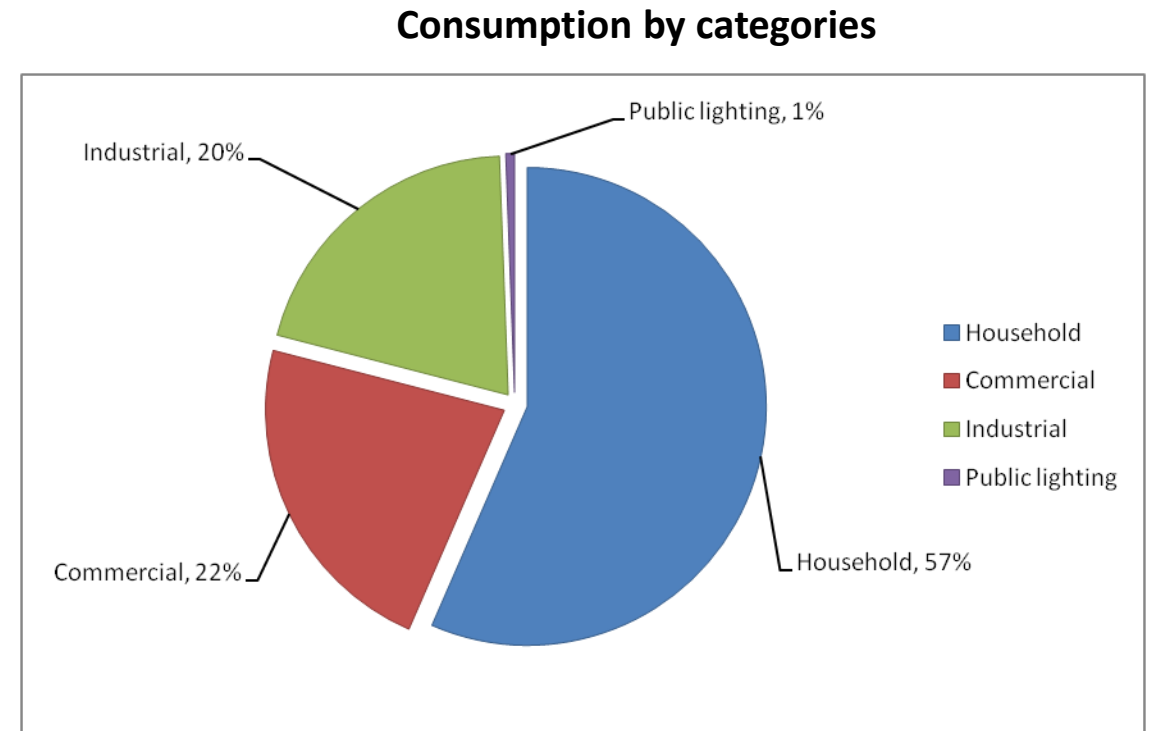


Expected demand in DSO is 5.5 TWh

Supply - Consumption by categories

- ❑ 8 licensed suppliers, among which are SLR (Supplier of Last Resort) and USS (Universal Service Supplier)

- ❑ Licensed suppliers:
 1. KESCO
 2. HEP Energia KS
 3. GSA Energji
 4. Future energy trading
 5. Jaha Company
 6. KEK
 7. Sharr Cem
 8. Energo LLC



Thank you for your attention!

