

Analysis of final consumers' electricity price structure in Serbia

by Aleksandar Katancevic and Veljko Vukovic

Retail

SRB January the 1st next year is the official date when the total number of free market participants able to choose their own electricity supplier in Serbia will change from a modest 26 to over 2700. However, it is possible to get a feel for the upcoming consequences of this event now, in November, with the December issue of Market Player. Creditworthy buyers of electrical energy are keen to get ready in time to make use of their.....read more on page 10.

The multi-utility concept for Croatian Telecom - the new player in the retail electricity market

by Diana Hinic

Retail

CRO In mid-October, Croatian Telecom (HT) obtained a licence from the Croatian Energy Regulatory Agency (HERA) to supply electricity. A few days later HT had placed its first tender to purchase electricity. After preparations that lasted for two years, HT has joined a retail market whose.....read more on page 9.

Serbian market and grid operator EMS confirmed its intention to open the electricity exchange in 2014

by Bosko Knezevic

Wholesale

SRB The announced opening of the electricity exchange is in its initial stage, and the implementation of the project is being done together by Serbian power grid Elektromreza Srbije (EMS), Ministry of Energy and Energy Agency of the Republic of Serbia (AERS). Opening of the electricity exchange offers multiple benefits to the Serbian energy market, among.....read more on page 17.

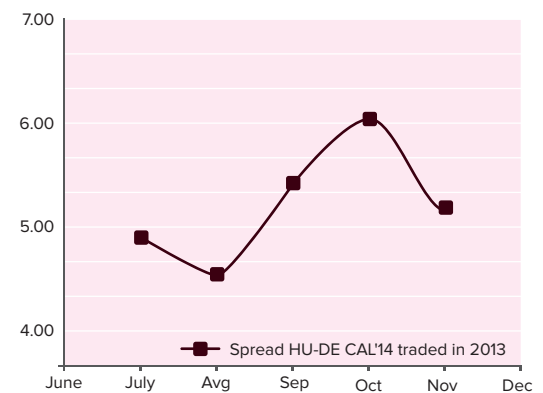
Hot Topic

SLO Overhaul of NE Krsko extended due to accident but returned on the grid. HEP and GEN-I forced to buy power from other sources.

...read more on page 16.

42.06
MPEIIndex
calculated on prices
of market survey of
29.11.2013.

GERMANY
36.80
— DEC'13 —
HUNGARY
42.20



Natural Gas Wholesale Prices from bilateral trades assumption

30.11.2013

Country	Deliveries	EUR/MWh
DE	DEC'13	28.50
AT	DEC'13	28.25
TR	DEC'13	24.30
SEE ¹	DEC'13	31.00 - 39.00

Emissions' Certificates Prices assumptions

30.11.2013

Period	Period	EUR/t CO ₂
EU-EA ²	2013-2020	4.35
Green-CER ³	n.a.	0.30

Coal Wholesale Prices bilateral trades assumption

30.11.2013

Country	deliveries	USD/t
DES ARA ⁴	DEC'13	82.50
FOB RB ⁵	DEC'13	87.25

ELECTRICAL ENERGY - €/MWh

30.11.2013

Market:	IT		DE		HU		CZ		GR	
Profile:	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK
DEC'13	64.80	74.50	36.90	51.00	42.70	57.00	35.50	50.50	46.75	65.45
CAL'14	61.70	68.00	36.80	48.50	42.30	56.00	36.00	47.50	46.50	65.10

Market:	SLO		CRO		SRB		RO*		BG*	
Profile:	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK
DEC'13	42.00	54.60	42.50	59.50	43.00	60.20	35.00	49.00	34.00	47.60
CAL'14	42.10	54.73	42.90	60.06	43.10	60.34	38.00	53.20	36.00	50.40

Market:	BIH		MNE		MK		AL		TR	
Profile:	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK	BASE	PEAK
DEC'13	42.50	59.50	43.75	61.25	45.00	63.00	45.50	63.70	58.00	69.60
CAL'14	42.25	59.15	43.90	61.46	46.00	64.40	46.20	64.68	55.00	66.00

* Presented price is without export fee which is additional 5 EUR/MWh for RO and 6 EUR/MWh for BG

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Handbook for Trading Electrical Energy

Official Textbook for Executive Programme in Trading Electrical Energy

Price survey by
STRATEGAEAST
ENERGY INVESTMENTS CONSULTING

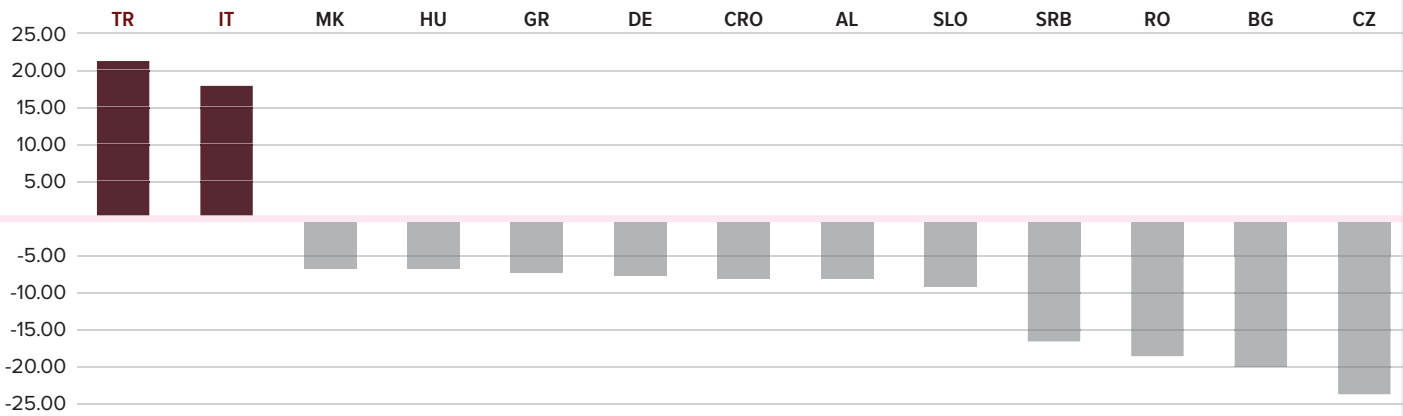
MPEIIndex - Market Player's survey of bilateral market trades, calculated as average front month Electrical Energy price index for Southeast Europe (HU, SLO, CRO, SRB, BIH, MK, MNE, AL, RO, BG, GR)

1 - SEE stands for Southeast Europe; 2 - stands for EU Emission Allowances; 3 - stands for Green Certified Emission Reductions; 4 - DES ARA stands for Delivered Ex-Ship at the ports of Amsterdam, Rotterdam or Antwerp in the Netherlands where ARA's coal quality parameters: Calorific Value 6000 kcal/kg, Total Moisture 12-15%, Volatile Matter 22-37%, Ash 11-15%, Sulphur 0.75-1%, Hardgrove Grindability Index 45-70, Nominal Topsize 50mm; 5 - FOB RB stands for Free On Board at port of Richards Bay in South Africa where RB's coal quality parameters: Calorific Value 6000 kcal/kg, Total Moisture max 12%, Volatile Matter min 22%, Ash max 15%, Sulphur max 1%, Calcium Oxide in Ash max 12%, Hardgrove Grindability Index 45-70, Nominal Topsize 50mm

Disclaimer: Stratega East d.o.o. Belgrade is not responsible for damages and losses arising from any commercial decisions based on this publication.

Spark Spread DEC'13 PEAK - EUR/MWh

30.11.2013

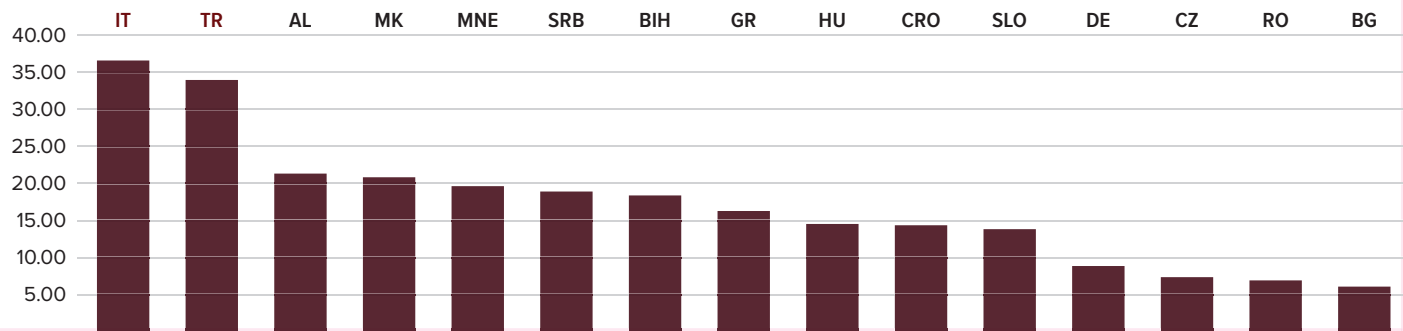


For all EU member States Clean-Spark and Clean-Dark spreads (accounting for the CO₂ emissions charge) are compared with Dirty-Spark and Dirty-Dark-Spreads of all other non EU member states.

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Dark Spread DEC'13 BASE - EUR/MWh

30.11.2013



For all EU member States Clean-Spark and Clean-Dark spreads (accounting for the CO₂ emissions charge) are compared with Dirty-Spark and Dirty-Dark-Spreads of all other non EU member states.

Price survey by
STRATEGAEAST
ENERGY INVESTMENTS CONSULTING

Yearly cross-border capacity auctions' prices for delivery in the Year 2014

30.11.2013

Source	Sink	Auction Holder	Delivery Period	Allocated Capacity (MW)	Price (EUR/MWh)
AUT (APG)	SLO (ELES)	CAO	01.01 - 31.12.2014	400	5.60
SLO (ELES)	AUT (APG)	CAO	01.01 - 31.12.2014	400	0.25
AUT (APG)	HU (MAVIR)	CAO	01.01 - 31.12.2014	300	5.20
HU (MAVIR)	AUT (APG)	CAO	01.01 - 31.12.2014	300	0.48
SLO (ELES)	CRO (HOPS)	CAO	01.01 - 31.12.2014	800	0.23
CRO (HOPS)	SLO (ELES)	CAO	01.01 - 31.12.2014	600	0.38
HU (MAVIR)	CRO (HOPS)	CAO	01.01 - 31.12.2014	700	0.52
CRO (HOPS)	HU (MAVIR)	CAO	01.01 - 31.12.2014	600	0.11
HU (MAVIR)	RO (TRANSEL.)	MAVIR	01.01 - 31.12.2014	150	0.33
RO (TRANSEL.)	HU (MAVIR)	MAVIR	01.01 - 31.12.2014	200	0.50
HU (MAVIR)	SRB (EMS)	EMS	01.01 - 31.12.2014	300	0.51
SRB (EMS)	HU (MAVIR)	EMS	01.01 - 31.12.2014	300	0.43
SRB (EMS)	RO (TRANSEL.)	TRANSELECTRICA	01.01 - 31.12.2014	100	0.12
RO (TRANSEL.)	SRB (EMS)	TRANSELECTRICA	01.01 - 31.12.2014	150	1.10
UKR (UKRENERGO)	RO (TRANSEL.)	TRANSELECTRICA	01.01 - 31.12.2014	50	0.10
RO (TRANSEL.)	UKR (UKRENERGO)	TRANSELECTRICA	01.01 - 31.12.2014	50	0.02
BIH (NOS)	CRO (HOPS)	HOPS	01.01 - 31.12.2014	200	0.15
CRO (HOPS)	BIH (NOS)	HOPS	01.01 - 31.12.2014	200	0.15

Price survey by
STRATEGAEAST
ENERGY INVESTMENTS CONSULTING

Monthly cross-border capacity auctions' prices for December'13 deliveries

30.11.2013

Source	Sink	Auction Holder	Delivery Period	Allocated Capacity (MW)	Price (EUR/MWh)
GR (ADMIE)	ITA (TERNA)	CASC	01.12 - 31.12.2013	0	/
ITA (TERNA)	GR (ADMIE)	CASC	01.12 - 31.12.2013	0	/
SLO (ELES)	CRO (HOPS)	CAO	01.12 - 31.12.2013	300	0.21
CRO (HOPS)	SLO (ELES)	CAO	01.12 - 31.12.2013	300	0.58
HU (MAVIR)	CRO (HOPS)	CAO	01.12 - 31.12.2013	500	0.47
CRO (HOPS)	HU (MAVIR)	CAO	01.12 - 31.12.2013	400	0.18
HU (MAVIR)	RO (TRANSEL)	MAVIR	01.12 - 31.12.2013	306	0.18
RO (TRANSEL)	HU (MAVIR)	MAVIR	01.12 - 31.12.2013	450	1.09
SRB (EMS)	HU (MAVIR)	EMS	01.12 - 31.12.2013	500	0.53
HU (MAVIR)	SRB (EMS)	EMS	01.12 - 31.12.2013	602	0.21
SRB (EMS)	RO (TRANSEL)	TRANSELECTRICA	01.12.2013	250	0.02
SRB (EMS)	RO (TRANSEL)	TRANSELECTRICA	02.12 - 06.12.2013	100	0.23
SRB (EMS)	RO (TRANSEL)	TRANSELECTRICA	07.12 - 16.12.2013	250	0.01
SRB (EMS)	RO (TRANSEL)	TRANSELECTRICA	17.12 - 20.12.2013	200	0.13
SRB (EMS)	RO (TRANSEL)	TRANSELECTRICA	21.12 - 31.12.2013	250	0.15
RO (TRANSEL)	SRB (EMS)	TRANSELECTRICA	01.12.2013	450	0.65
RO (TRANSEL)	SRB (EMS)	TRANSELECTRICA	02.12 - 04.12.2013	350	0.88
RO (TRANSEL)	SRB (EMS)	TRANSELECTRICA	05.12 - 31.12.2013	450	0.66
BIH (NOS)	CRO (HOPS)	HOPS	01.12 - 31.12.2013	125	0.73
BIH (NOS)	CRO (HOPS)	NOS	01.12 - 31.12.2013	175	0.44
CRO (HOPS)	BIH (NOS)	HOPS	01.12 - 31.12.2013	/	/
CRO (HOPS)	BIH (NOS)	NOS	01.12 - 31.12.2013	100	0.16
SRB (EMS)	CRO (HOPS)	HOPS	01.12 - 31.12.2013	200	0.34
SRB (EMS)	CRO (HOPS)	EMS	01.12 - 31.12.2013	200	0.31
CRO (HOPS)	SRB (EMS)	HOPS	01.12 - 31.12.2013	250	0.09
CRO (HOPS)	SRB (EMS)	EMS	01.12 - 31.12.2013	250	0.12
BIH (NOS)	SRB (EMS)	EMS	01.12 - 31.12.2013	200	0.63
BIH (NOS)	SRB (EMS)	NOS	01.12 - 31.12.2013	200	0.20
SRB (EMS)	BIH (NOS)	EMS	01.12 - 31.12.2013	150	0.29
SRB (EMS)	BIH (NOS)	NOS	01.12 - 31.12.2013	150	0.25
SRB (EMS)	MNE (CGES)	EMS	01.12 - 31.12.2013	201	0.22
SRB (EMS)	MNE (CGES)	CGES	01.12 - 31.12.2013	192	0.23 - 0.54
MNE (CGES)	SRB (EMS)	EMS	01.12 - 31.12.2013	201	0.06
MNE (CGES)	SRB (EMS)	CGES	01.12 - 31.12.2013	150	0.10 - 0.18
AL (OST)	SRB (EMS)	EMS	01.12 - 31.12.2013	99	0.15
SRB (EMS)	AL (OST)	EMS	01.12 - 31.12.2013	100	1.84
SRB (EMS)	MK (MEPSO)	EMS	01.12 - 31.12.2013	225	1.63
SRB (EMS)	MK (MEPSO)	MEPSO	01.12 - 31.12.2013	225	n.a.
MK (MEPSO)	SRB (EMS)	EMS	01.12 - 31.12.2013	75	0.33
MK (MEPSO)	SRB (EMS)	MEPSO	01.12 - 31.12.2013	75	n.a.
SRB (EMS)	BG (ESO)	EMS	01.12 - 31.12.2013	75	0.89
SRB (EMS)	BG (ESO)	ESO	01.12 - 31.12.2013	75	0.85
BG (ESO)	SRB (EMS)	EMS	01.12 - 31.12.2013	50	2.83
BG (ESO)	SRB (EMS)	ESO	01.12 - 31.12.2013	50	2.51
UKR (UKRENERGO)	RO (TRANSEL)	TRANSELECTRICA	01.12 - 31.12.2013	50	0.00
RO (TRANSEL)	UKR (UKRENERGO)	TRANSELECTRICA	01.12 - 31.12.2013	40	0.00
BIH (NOS)	MNE (CGES)	CGES	01.12 - 31.12.2013	125	0.22 - 0.42
BIH (NOS)	MNE (CGES)	NOS	01.12 - 31.12.2013	175	0.05
MNE (CGES)	BIH (NOS)	CGES	01.12 - 31.12.2013	125	0.10 - 0.16
MNE (CGES)	BIH (NOS)	NOS	01.12 - 31.12.2013	125	0.07
AL (OST)	MNE (CGES)	CGES	01.12 - 31.12.2013	100	0.13 - 0.30
MNE (CGES)	AL (OST)	CGES	01.12 - 31.12.2013	115	1.19 - 1.36
BG (ESO)	RO (TRANSEL)	ESO	01.12 - 31.12.2013	50	2.64
RO (TRANSEL)	BG (ESO)	ESO	01.12 - 31.12.2013	50	1.20
BG (ESO)	GR (ADMIE)	ESO	01.12 - 31.12.2013	55	3.47
GR (ADMIE)	BG (ESO)	ESO	01.12 - 31.12.2013	90	0.03
BG (ESO)	MK (MEPSO)	ESO	01.12 - 31.12.2013	35	2.82
MK (MEPSO)	BG (ESO)	ESO	01.12 - 31.12.2013	25	0.85
BG (ESO)	TR (TEIAS)	ESO	01.12 - 31.12.2013	183	11.63
TR (TEIAS)	BG (ESO)	ESO	01.12 - 31.12.2013	133	0.03
GR (ADMIE)	AL (OST)	ADMIE	01.12 - 31.12.2013	50	0.03
AL (OST)	GR (ADMIE)	ADMIE	01.12 - 31.12.2013	50	1.23
MK (MEPSO)	GR (ADMIE)	ADMIE	01.12 - 31.12.2013	75	1.53
GR (ADMIE)	MK (MEPSO)	ADMIE	01.12 - 31.12.2013	109	0.03
TR (TEIAS)	GR (ADMIE)	ADMIE	01.12 - 31.12.2013	67	0.31
GR (ADMIE)	TR (TEIAS)	ADMIE	01.12 - 31.12.2013	92	5.50

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03 12 2013

TIME

CEE CAO publishing available cross-border capacities for January'14 auction

SRB TSO EMS publishing monthly available cross-border capacities for Serbian-Hungarian border January'14

04 12 2013

TIME

MK Submission of bids for Yearly 2014 cross-border capacity auction organized by MEPSO

CET: 09:00 - 14:00

10 12 2013

TIME

CEE Deadline for submitting bids to CAO cross-border capacity auction for January'14

CET 12:00

CEE Published results of CAO auction for January'14

CET 15:00

SRB TSO EMS publishing monthly available cross-border capacities for Serbian-Hungarian border January'14

CET: 09:00-13:00

SRB Reusults of TSO EMS auction for Serbian-Hungarian border

CET: 17:00

SRB Reusults of TSO EMS auction for Serbian-Hungarian border

CET: 17:00

11 12 2013

TIME

CRO Publication of Auction Specification by TSO HEP-OPS

12 12 2013

TIME

RO Deadline for bidding Monthly capacity auctions for deliveries in January on Transelectrica

13 12 2013

TIME

RO Results publishing for Monthly capacity auctions on Transelectrica

24 12 2013

TIME

RO CZ SK SLO BG Christmas Eve

Non-working day

25 12 2013

TIME

RO CZ SK SLO BG HU CRO GR AL BiH Christmas

Non-working day

26 12 2013

TIME

RO CZ SK SLO BG HU CRO GR Independancy day, St. Stephen day, 2nd day of Christmas, Boxing day,

Non-working day

30 12 2013

TIME

CEE Published monthly MPEEindex at Market Player issue for January'14

CET: 12:00:00

31 12 2013

TIME

RO SK SLO BG HU New Year's Eve

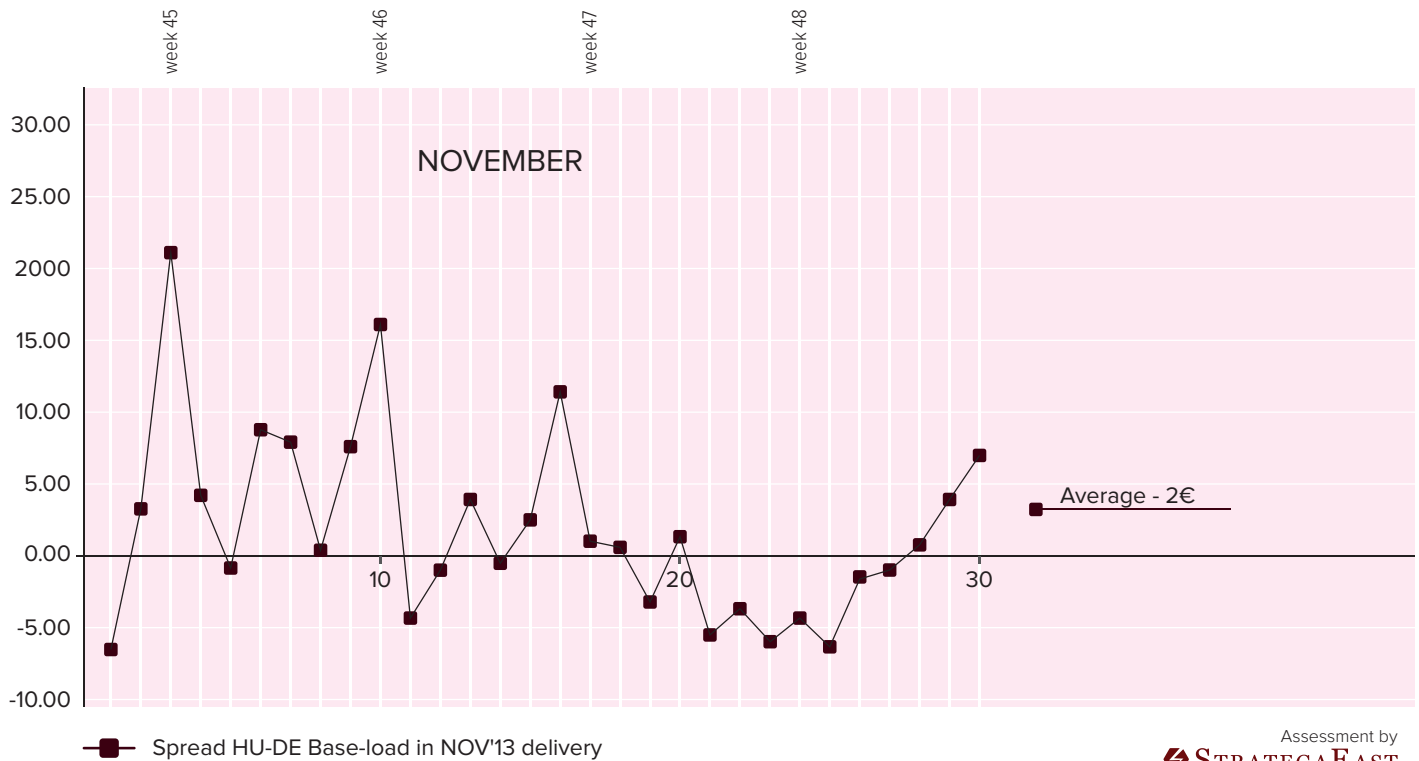
CET: 12:00:00

01 WHOLESALE MARKETS INSIGHT

Central East Europe

NOV'13 REVIEW

HU Hungarian November forward product traded fairly high, ending at around 9.00 EUR/MWh above Germany just before delivery. In delivery this product dropped significantly to around 41 EUR/MWh and to around 2.00 EUR above its German counterpart. Hungarian day-ahead power market mostly coupled with Czech and Slovak markets following increase in flows from SEE region due to healthy hydro situation. Additionally, CHPs (Combined heat and power plants) in Hungary are seasonally being switched on, which is lifting overall generation level in Hungary.



Assessment by
STRATEGAEAST
ENERGY INVESTMENTS CONSULTING

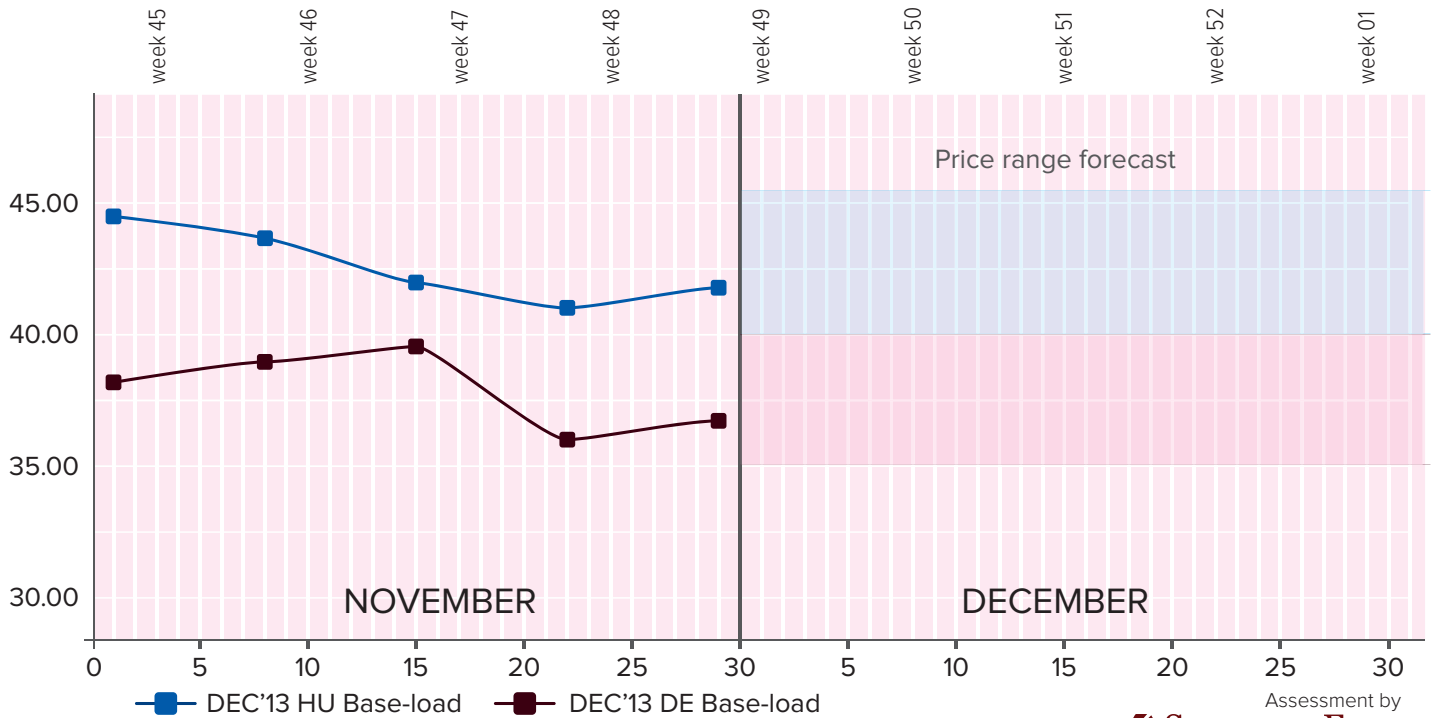
CZ SK Czech and Slovak power price in November delivered around 1.30 EUR below its German counterpart, increasing the spread from October when it was around 0.50 EUR. This was mainly due to higher supply coming from SEE region. German spot price level was fairly low at beginning of the month due to higher wind and higher than normal temperatures. As wind power production levels decreased and temperatures dropped towards the middle and end of the month, price levels on spot increased. Prices on German spot were mostly stable at the end of the month averaging at around 39 EUR/MWh for the whole month of November.

DEC'13 FORECAST

HU Hungarian December forward traded around 5.50 EUR/MWh premium to Germany, settling around 42.50 at the end of November. Traders mostly ignored flat delivery spreads between Hungary and Germany during November, allowing for stronger decoupling during Christmas period. Last year Hungarian power prices during Christmas week were significantly higher compared to Germany due to warmer weather in Western Europe.

DEC'13 base-load in HU and DE traded during month of November and expected range of average price in delivery month (December)

Friday closing	DEC'13 HU	DEC'13 DE
01-11-13	44.1	37.5
08-11-13	43.8	37.9
15-11-13	42.8	38.5
22-11-13	42.3	36.6
29-11-13	42.7	36.9



Assessment by
STRATEGA EAST
ENERGY INVESTMENTS CONSULTING

CZ SK Forward trading of December product in Czech mostly followed its German counterpart, settling at 35.80 EUR/MWh allowing for 1 EUR spread between two products, Germany above Czech, which is historically in line with expectations for delivery. German December forward product fell strongly towards the end of November to 36.85 EUR/MWh as weather and availability forecasts painted a less tight picture. We estimate Czech/German spread to deliver in December around current 1 EUR level.

CAL'14 FORECAST

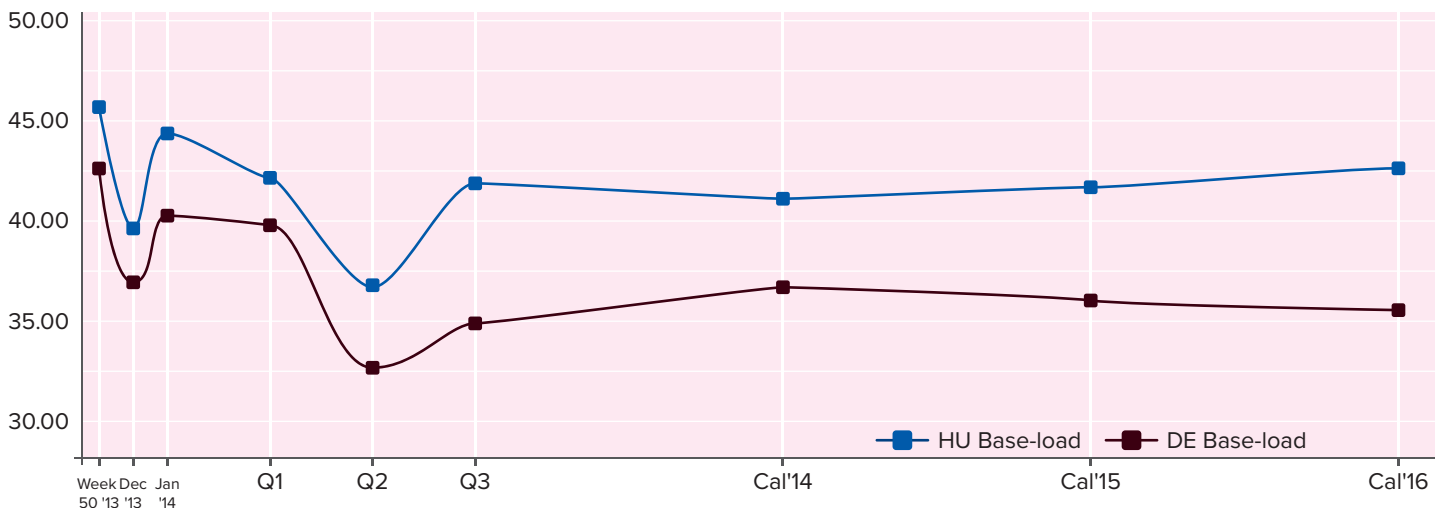
HU Hungarian/German CAL2014 spread shrank during November. This was mainly due to shrinking spread on the spot market. Additionally, on 13 November Hungarian state utility MVM sold in the auction 1.8 TWh of CAL14 products, which brought additional pressure on Hungarian front year. During November, CAL14 spread lost around 0.5 EUR/MWh bringing Hungary above Germany spread to 5.30. This spread might come under pressure in coming days due to ongoing purchase tender from Croatian state utility HEP for CAL14 and Q3 14 products.

CZ SK Czech next year product traded for last few months tightly in line with its German counterpart, keeping 1 EUR/MWh spread stable throughout this period.

Forward market curves for Hungarian and German market 30.11.2013

	HU Base-load	DE Base-load
Week 50'13	46.00	43.45
Dec'13	39.80	36.95
Jan'14	44.55	40.10
Q1	43.80	39.95
Q2	36.15	33.15
Q3	44.40	34.90
Cal'14	42.30	36.80
Cal'15	42.45	36.20
Cal'16	43.25	35.80

Assessment by
STRATEGA EAST
ENERGY INVESTMENTS CONSULTING



South East Europe and Turkey

NOV'13 REVIEW

SLO November delivery in SEE was stable overall, despite the prolonged outage of Slovenian and Croatian nuclear power plant Krsko. Inexpensive energy balance in the region was supported with good hydrology and production from hydro power plants, as well as warmer than average weather for this time of year, which kept consumption in a range similar to early autumn rather than winter. However the amount of hydro generation was not excessive, as can happen in Central and Southwest Balkans such that the market is overwhelmed with electricity exports from SEE into CEE.

TUR Average electricity price for deliveries on day-ahead market in Turkey was 54.95 EUR/MWh.

Cross-border capacity auctions

SEE The last weeks of November were very interesting due to the annual cross-border capacity auction results and clear cross-border premiums paid between the lower German market on one side and 5.60 EUR/MWh higher Slovenia and 5.20 EUR/MWh Hungary on the other. Also, a significant premium was paid for directions from Romania to Serbia of 1.10 EUR/MWh on an annual level. Both directions for Serbia with Hungary were paid almost equally – 0.50 EUR/MWh directions to Serbia and 0.43 EUR/MWh directions to Hungary – reflecting traditionally equal periods of arbitrage opportunities in both directions during one year (heavy imports during severe winters and hot summers as well as exports during wet and low consumption periods in Serbia).

Monthly cross-border capacity auctions in SEE showed good electricity surplus expectation in Bulgaria, a country with stable exports during the whole year, but probably increased due to the effect of upcoming holidays. December cross-border capacity costs in all directions out of Bulgaria were significant: 11.63 EUR/MWh to Turkey, 2.83 EUR/MWh and 2.51 EUR/MWh to Serbia, 2.82 EUR/MWh to MK and 2.64 EUR/MWh to Romania. Directions from Serbia to Albania 1.84 EUR/MWh and 1.63 EUR/MWh to MK were also significant. Directions from MK to Greece 1.53 EUR/MWh and Albania to Greece 1.23 EUR/MWh were equally significant, expressing traders' expectation that Greece would be the country with the most expensive electricity for December out of the SEE countries.

DEC'13 FORECAST

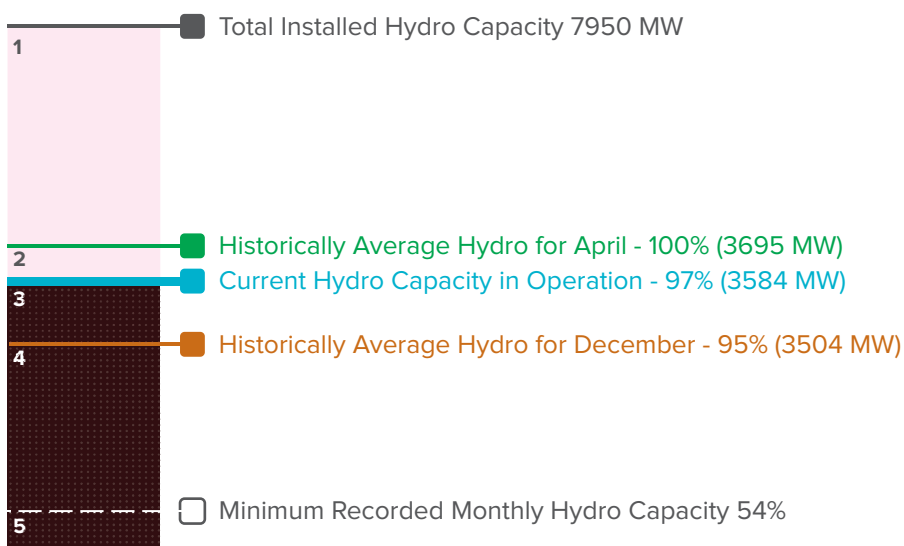
SEE December electricity in SEE is expected to be calm regarding prices in delivery, since the region is entering the first two weeks with hydro availability above the long-term average, while the second two weeks of December are Christmas and national holidays in Western and Central Europe; due to this, industrial consumption will be low and therefore inexpensive electricity imports into SEE will be available.

HYDRO GENERATION

SEE Assumed hourly production of hydropower is calculated with the assumption that power plants produce the same amount of electricity every hour (base-load profile) on a monthly basis with the aim of clarifying the share of the engaged out of total hydro capacity on a monthly basis.

Water levels in major rivers of Dunube basin (Danube, Sava, Drina and others) are currently above the long-term average for the month of November. As for the first week of December, the water level is expected to rise, which guarantees good production from hydro power plants.

ELECTRICITY GENERATION OUT OF HYDRO POWER PLANTS: SRB, CRO, BIH AND SLO



1. Includes countries: SRB, CRO, BIH and SLO
2. Historically biggest recorded monthly hydro generation for the last 10 years, equalized on hourly base-load capacity for that month. April - month with highest hydro Capacity in operation for SEE
3. Assumed current month hydro capacity in operation
4. Long-term average hydro generation capacity for the month of December
5. Smallest recorded monthly generation capacity for the last 10 years, equalized on hourly base-load capacity for that month

02

RETAIL MARKETS INSIGHT

CRO The multi-utility concept for Croatian Telecom – the new player in the retail electricity market

In mid-October, Croatian Telecom (HT) obtained a licence from the Croatian Energy Regulatory Agency (HERA) to supply electricity. A few days later HT had placed its first tender to purchase electricity. After preparations that lasted for two years, HT has joined a retail market whose value, including wholesale, had risen to 1.5 billion euros last year, an annual growth of 100 million euros. The major players in the Croatian market, HEP, GEN-I and RWE, have a new competitor. HT will use its subsidiary Iskon for electrical energy distribution.

In an exclusive interview with Market Player, HT representatives spoke of their current venture and stated that their main motive for entering the retail electricity market was to satisfy their customers. "Croatian Telecom d.d. (HT) decided to enter the electricity market with a clear mission to reward our current consumers by providing new services within our loyalty programme. HT will increase synergies with existing resources (its customer base, CRM and its billing system), so the cost structure will be optimised, therefore our services will be more competitive, it will be easier to make purchases and the end user experience will be much better", a HT representative told Market Player.

HT has been preparing to enter the electricity market for two years, and it is an obviously well-planned move. A company representative spoke of their expectations: "Every initiative within the HT group needs to deliver positive results at some point. However, HT is not under pressure for short-term profitability from this project. The initial goal is to create a positive balance for the entire HT group and the measure of success will be retaining consumers who are primarily telecom services users."

Hungarian Telecom (Magyar Telekom) has a similar multi-utility concept. It offers its telecom users a discount from three to five per cent off the base price of electricity that HEP charges. This decreases the cost of electricity and natural gas for small companies by 5%. Customers can choose between two tariff models. The simpler model gives a discount of 3% off the base price for natural gas and a 5% discount off the base price for electricity. Larger consumers can save up to 5% of their natural gas bill and 8% of their electricity bill.

"What will make the difference in the recently liberalised electricity market between telecom rivals and other suppliers, will be to offer more favourable electricity pricing combined with telecom services," a HT representative told Market Player. "Since HT's goals are to realise growth not only financially but also ecologically, we will soon have a wide range of services that will promote a more efficient use of electric energy and enable access to renewable energy sources. The ultimate goal is to create the maximum synergy with telecom resources, since the users of the future will obviously want to have full control over all costs, no matter where or when." Croatian Telecom emphasized that their Go to Market strategy has several phases and that in the initial phase they will not restrict their users with contracts.

As well as the Hungarian Telecom model, in February, the Polish telecom provider Orange initiated cooperation with the largest Polish energy company, PGE, creating a joint offer. Netia has a similar venture with RWE. The focus of this model are business users, because the larger the consumer, the higher the profit margin. Some of the services mentioned companies have on offer are price guarantees, e-billing, 24x7 customer support and online consumption monitoring thanks to a remote measurement system. However, in the initial phase, HT will probably focus on households and small companies. "Since the majority of our users are households and small or mid-sized firms, our electricity supply offer will be tailored to meet the needs of these specific user categories," a company representative declared.

Time will show if HT will offer its customers price guarantees, like companies in Poland do, and also what mechanism HT will use to protect itself from users who don't pay for the services received. In stage one, HT will try to find an optimal



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solution for the company and its customers. “After we have completed the first phase, we will analyse which relationship with our customers is the win-win option for both parties”, HT commented. Users who don’t pay on time can be a serious problem in this business, but the company is aware of the risk. “Certainly that is one of the challenges we will have to face. But we believe that with current risk management and internal adjustments to users activation procedure we have reduced that threat to a minimum”, a HT representative explained while speaking of the protection mechanisms available. “Cancellation of the supply is already defined in the basic agreement for electricity supply, so HT has mechanisms that can be activated if that scenario occurs and a cancellation of the supply needs to happen.”

The electricity exchange, which should be launched early next year, will certainly make trading easier, but until then HT is ready to trade in the electricity exchanges of its neighbouring countries, Hungary and Slovenia. “The launch of the national electricity exchange will be a big step towards full liberalisation of the Croatian electricity market, because it will provide more transparent relations between everyone in the value chain, and it will especially benefit intra-day trading. However, our supplier is very flexible, so in an operational sense, HT will, even during the first shipment of electric energy, enjoy the same benefits as if we were using a national exchange,” a HT representative declared.

D.H.

SRB Analysis of final consumers’ electricity price structure in Serbia

January the 1st next year is the official date when the total number of free market participants able to choose their own electricity supplier in Serbia will change from a modest 26 to over 2700. However, it is possible to get a feel for the upcoming consequences of this event now, in November, with the December issue of Market Player. Creditworthy buyers of electrical energy are keen to get ready in time to make use of their option to switch current supplier, and the first step is to price their hourly consumption profiles against the market with the help of alternative offers. To succeed in this task and come up with adequate price comparisons the consumer needs to have access to an accurate hourly consumption diagram. This is not just a problem for the final consumer that does not know their own consumption profile, or the private supplier (trader) who does not want to take the risk of balancing bigger unpredictable hourly imbalances. It is also a problem for the public supplier company that barely has information on consumers’ hourly consumption despite the fact they are obliged by law to provide fixed regulated prices and a full supply contract (bearing the costs of any hourly imbalances). Probably everyone understands today that the price of electricity depends largely on the consumption profile; therefore increased uniformity of the hourly level directly and positively influences lower average prices.

commercial spaces, factories with distributed production facilities as well as reception of electrical energy at different voltage levels, and similar). There are as yet no clear laws defining the possibility to transfer payment responsibility per measurement point belonging to the commercial space owner with the legal body (company) renting the space and actually consuming the electrical energy. This prevents the company that rents the space from procuring and sourcing the energy for a particular measurement point from the market together with the total purchase quantity for other points, and therefore remains the single measurement point to be supplied from the public supplier at regulated tariff. In this case some of the objects used by companies supplied from the market will most likely stay in the public supplier domain. In addition, since one of the criteria to decide upon eligibility of the buyers to be supplied by an alternative supplier is that the connection point must be above 1 kV, the law is somewhat incomplete in respect of what happens to the objects of customers whose measurement point on low voltage is lower than 1 kV, and whether these objects should remain in the mode of public supply, or the contract should specify the price in this case? There are different opinions on this; however, such questions cannot be allowed to remain incomplete when the market is opened up.

Legal definitions of measurement also point to interpretation of regulations becoming increasingly complex in the buyers’ domain, with a huge number of measurement points (such as: shopping, restaurant and hotel chains, company owned

The problems of identifying their own profile as well as the interpretation of the law are just some of the issues that are already engaging new market participants. On the other hand, what is also clear to most participants, and the biggest

TARIFF ELEMENT	CHARGING ITEM	Measurement unit	EUR (RSD/EUR = 114.07)
ACTIVE POWER	Approved power	MW	329,00
	Excess power	MW	1.317,17
ACTIVE ENERGY	Higher daily tariff	MWh	2,90
	Lower daily tariff	MWh	1,44
REACTIVE ENERGY	Up to the limit	MVarh	1,22
	Over the limit	MVarh	2,45

problem facing electricity suppliers, is the necessity of a clear pricing structure for the customer.

Suppliers want to know, among other things, the extent to which the grid fees (a fee for access to the transmission and distribution systems) shall affect the price of electricity, and who will calculate and collect the network fee? Apparently, in a full supply agreement, the bill for the network fee to the buyer details a supplier, who will be required to pay the fee directly to the appropriate transmission or distribution system. Identification of the exact amount of the grid fees shall be very important for the customer in the procurement process, enabling comparison of the final cost of the public supplier to the price of the supplier under the contract, but also enabling comparison of the price of electrical energy (without grid fees) on the retail market with the price at the wholesale market level (both in Serbia and in the Southeast Europe region, Germany and the markets of Central Europe).

In addition, the price of electricity that a supplier should offer the end customer includes fees for reservation of cross-border capacity, which can be reserved at the annual, monthly and daily auctions organized by the transmission system operator, as costs that are relevant for the electricity generated by purchases from abroad (environmental certificates, export fees).

Only when aware of all the factors that affect the final price, can the supplier determine their margin as the final addition to the costs, and thus complete the process of price formation for the end customer.

As we explained above, one of the important factors that affects the final cost of electricity is the network fee, which will be addressed in more detail in this issue of Market Player.

Network fee for access to the transmission (high voltage) system for transmission of electrical energy

According to the price established for access to the electricity transmission system by the transmission system operator, Public Enterprise “Elektromreza Srbije” (“Off. Gazette of the RS”, no. 16/2013), the prices for access to the electricity transmission system are:

Approved and excess power is charged per installed capacity; while active and reactive energy are charged depending on the actual

quantities consumed and are directly added to the final purchase price of electricity per MWh. These charges are unified for the entire territory of Serbia.

All companies whose facilities are directly connected to the transmission system only pay this fee in respect of measuring points for these objects.

Grid fee for access to electricity distribution system at medium and low voltage

In Serbia, there are five electricity distribution system companies (operators), which operate as subsidiaries of the public utility “Elektroprivreda Srbije”, namely:

- ▶ “Elektrovojvodina“ d.o.o. Novi Sad;
- ▶ “Elektrodistribucija Beograd“ d.o.o. Belgrade;
- ▶ “Elektrosrbija“ d.o.o. Kraljevo;
- ▶ “Centar“ d.o.o. Kragujevac;
- ▶ “Jugoistok“ d.o.o. Nis.

Currently, the public enterprise “EPS Snabdevanje“ d.o.o. Beograd, supplies using the regulated prices and collects transmission and distribution grid access fees from customers. These grid access fees are combined, and do not contain separately stated charges for the transmission and distribution systems, even though the end user should know the exact amount of any charges payable. Clear understanding of the charges will be of importance to the end user during price and contract negotiation.

The public supplier pays the operator of the distribution system a fee to access the system and the distribution system operator pays the transmission system operator compensation for access to the transmission system.

The cost of access to the distribution grid is much greater in comparison to the fees for access to the transmission system, particularly in the domain of the widest consumer class (households). Fees for access to the distribution system in Serbia are not equal, and each distribution system operator regulates the price in its own territory, with the fees generally increasing from the northern part of the territory to the south of Serbia.

For comparison, it is possible to look at the pricing approach for active energy for the low voltage end consumer (households):

A.K.
V.V.

Price for distribution of active energy for household consumption with single tariff metering system:	RSD/kWh	EUR/MWh
“Elektrovojvodina“ d.o.o. Novi Sad	2.24	19.64
“Elektrodistribucija Beograd“ d.o.o. Beograd	3.15	27.62
“Elektrosrbija“ d.o.o. Kraljevo	2.10	18.41
“Centar“ d.o.o. Kragujevac	2.45	21.48
“Jugoistok“ d.o.o. Nis	3.20	28.05

03 INTERVIEW

SRB New 170 MW installed power from ElectraWinds projects in Serbia: Exclusive interview with Kurt Derieuw, country manager of ElectraWinds Serbia



ElectraWinds is a Belgian company that operates strictly in the renewable energy sector. The company was founded in 1998, and ever since has deployed its network not only in Europe, but also in Africa. Active in 11 countries – Belgium, France, Poland, Bulgaria, Romania, Serbia, Italy, Ireland, Netherlands, Kenya, South Africa – ElectraWinds operates wind farms, solar farms, biomass farms with solid parts and liquid parts, and also explores other forms of alternative, renewable energy. Production and processing of biofuel and liquid parts puts ElectraWinds on the world map as one of the major players in this field. The core of the company's activity is in wind energy, which it demonstrated by recently selling its solar farms in Belgium in order to focus on the core – the wind. Market Player spoke to Mr Kurt Derieuw, country manager of ElectraWinds Serbia, about Serbia's and the region's potential in renewable energy.

270 million euros worth of investments in wind projects in Serbia

Market Player: How long has the company operated in Serbia? Why did you choose this market?

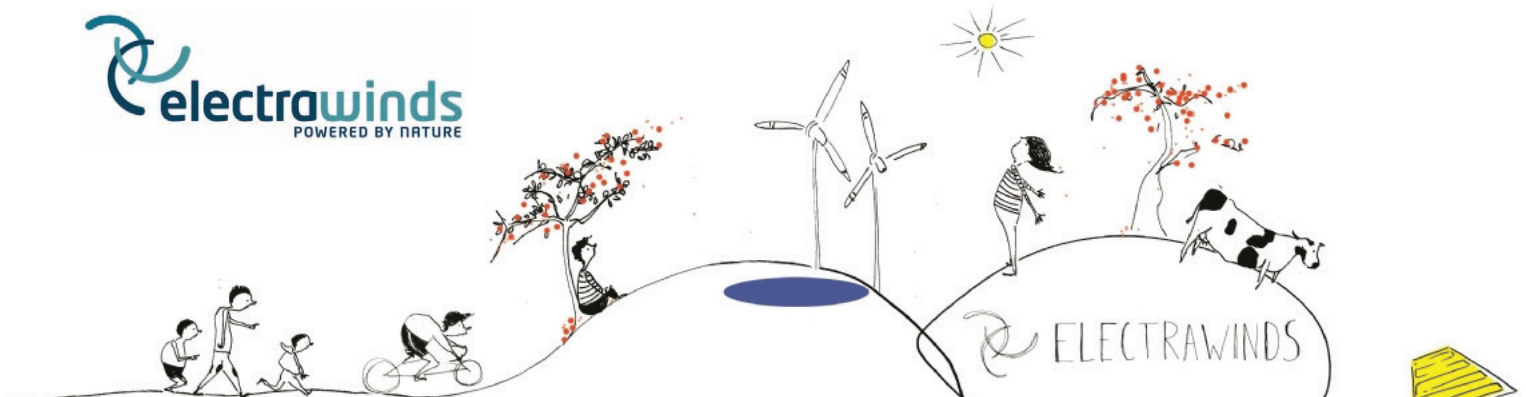
Kurt Derieuw: We started working in Serbia five years ago with the development of a rendering facility. We usually enter a country's market with wind energy, because for us this is the easiest solution – to develop a project and enter the market, and to get familiar with country's legislation. But in Serbia, we did it the other way around, because most of our interest was in animal waste. However, we also saw that Serbia had no operational wind farms yet, so we started almost simultaneously with wind development. We have one operational factory – the animal waste rendering facility – and we are developing the wind farms.

Market Player: What projects are currently active in Serbia?

Kurt Derieuw: We have four active projects - Energo Zelena and three wind projects. We are working on two wind projects in the municipality of Alibunar. One is completely permitted and the other one is about to be fully permitted. The third project is a wind farm in Kovacica, which is well into the development phase and it should be one of the largest in Serbia with the most power produced. These projects required strategic planning, because Serbian legislation distinguishes between wind farms that produce above and below 10 MW. This is why we developed a small wind farm of 8 MW – Malibunar – just to test the legislative procedures and development speed. The second farm in Alibunar is bigger – above 10 MW.

Market Player: What can you tell us about these three wind project? Power they'll produce, building dates, value of the projects?

Kurt Derieuw: Wind park Malibunar is fully permitted at 8 MW. It will have four turbines and we plan to start working on the site in 2014. The required investment is 16 million euros. The other park, Albunar, will have larger installed power of 42 MW, 21 turbines and 80 million euros should be invested by 2014, when we will start building the park. Koviacica wind park is an ambitious project with 120 MW of installed power capacity, 38 turbines and it requires an investment of 170 million euros. If all permits are obtained, we will start working on the site in 2015. We are currently working on financing for the fully permitted project in the municipality of Alibunar. Energy, building and location licences for the project have been obtained, but our status as a privileged producer needs to be negotiated with the government in order to access the network. No one has that established yet, and without it, financial procurement can't be fully accomplished. An estimated 1,5 to 2 million euros



will be spent per installed MW, 4 million per turbine, with the overall required investment for these three projects at about 270 million euros.

Market Player: Is the Serbian market and law framework friendly towards renewable energy? What is the main difference between the local market and the markets of western EU countries?

Kurt Derieuw: Overall impression is good. Every country has its own regulations that a company needs to meet. But it is much different from the Western countries, where it is easier to develop projects because everything is clear. In Serbia, some laws are changing while we plan, so we need to adopt the changes. It's not predictable enough. Simple example: in Western Europe, wind turbine is seen as a part of the equipment and it is certified by the producer as equipment, but here it is considered a building, since it is more than 50 m tall, so it needs to be certified as construction, and that is followed by additional regulations we need to meet, like firefighting rules.

Serbia obliged to participate in 20-20-20 EC strategy, so now they need to achieve a goal of 27% energy from renewables. But my impression is that Serbia doesn't rely much on renewable energy, because of its hydro potential. But since production from hydro is not enough to reach that target, alternative sources also need to be put into play.

Market Player: Do you have any plans for further investments in wind projects in Serbia?

Kurt Derieuw: Since the target for wind is 500 MW until 2020, we will not develop new projects in Serbia until the government increases the cap. The study showed that Serbia can provide 1000 MW of wind power, so if the government sets a higher target, we will develop new projects.

Market Player: What is Serbia's potential in renewable energy, especially compared to neighbouring countries Bulgaria and Romania, the markets in which ElectraWinds operate?

Kurt Derieuw: Serbia is a county with huge potential, not only in wind, but in renewable energy in total. There is wood biomass, household waste, animal waste – it can all be used to produce energy. Serbia is surrounded by countries that have a lot of operational wind farms – Croatia, Hungary, Romania, Bulgaria, and Montenegro. But there are no wind farms operational here. We have operational wind farms and solar farms in Bulgaria and Romania, and we develop some projects in the Romanian market. We can't compare Serbia to Romania because Romania is bigger and has bigger wind regions, while Serbia is small; but we shouldn't ignore the fact that it has a small region where the wind is good. While Romania already has 12,000 MW on its grid connection from wind only, Serbia is limited to 500 MW until 2020. That's a big difference. For example, Germany is the only net exporter of renewable energy. In winter, Serbia needs to import very expensive energy and the process of developing renewable energy in the country and creating jobs and opportunities for foreign investors is still too slow.

EnergoZelena – the most advanced rendering plant in Balkans

Market Player: Energo Zelena is currently your only fully operational project in Serbia. What can you tell us about this facility?



Kurt Derieuw: We initially came to Serbia to develop a rendering plant to produce electricity from animal fat. Our idea was to develop and to operate a state-of-the-art rendering facility. Serbia is moving towards EU, so one of the things that had to be regulated was safe animal waste disposal. There was an adequate legal framework, but there was no facility; there were two old rendering plants, but there was a need for new one, so we stepped in. This is one of the first modern rendering plants in Serbia – and also in Europe – that operates in accordance with EU and Serbian standards. We invested 21 million euros in this factory, and it was opened in Q1 2013. This is the only plant allowed to transfer CAT1 waste liquids into EU, since it is constructed according to EU regulations. So we have the approval to import the tallow produced in Serbia to our facility in Belgium, where we produce electricity from it.

Market Player: The factory is operational for almost a year. Its capacity is 150,000 t/y. How much waste did you treat this year and are you satisfied with the progress you've made so far?

Kurt Derieuw: In Serbia, officially, there is about 260,000 tons of waste available. After one year, we have 260 customers and we are collecting 25,000 tons on a yearly basis. For now, we are running on, let's say, a fifth of our full capacity, and this will increase very soon. There are other active facilities in Serbia, but I'd like to stress that we are a CAT1 facility. We are treating everything of animal origin – potentially contaminated, dangerous waste. Our products are used for energy production only. This is why we bring tallow to Belgium. But we still have a long way to go. When fully operational, the factory will employ 100 people. We started with 33 employees, and within a year we employed 10 more people.

Market Player: What are the greatest challenges you faced so far and where do you see the chance for further growth?

Kurt Derieuw: The major problem in Serbia is that there is still a lot of dumping; waste is disposed in rivers, forests – everywhere. Animal waste needs to be disposed of safely and rendered, because the consequences of dumping are disease and toxins that go into ground and pollute soil and water. We came to Serbia because authorities guaranteed that from the moment we opened the facility, they would make sure the law enacted in 2009 that prohibits dumping will be applied. We need to urge the government to start enforcing existing law, so that this practice will slowly disappear and waste will be treated properly.

With the rendering capacities of Energo Zelena, we can handle all animal waste production not only in Serbia, but also in former Yugoslavia republics like Macedonia, Montenegro and BiH. They have a limited amount of animal waste, so it is not feasible to install a plant, but they need to dispose of the waste. So we are negotiating to collect the waste from them, import it to Serbia, treat it in Energo Zelena, and export the end product. Our aim is to become the regional base for the former Yugoslavia. If necessary, we are willing to invest in a second rendering facility at some point.

D.H.

04 COMPANIES

IT Presenting the Company: Edelweiss Energia



Edelweiss Energia is an international trader of electricity, natural gas and environment-related products. Founded in 2005 and headquartered in Sarnico, Italy, it provides advanced portfolio-management services and develops green marketing activities. The company is active in the following business areas: proprietary trading standard products (power, natural gas, environmental certificates and cross-commodity trading); proprietary trading non-standard products (structured products for power plants, power profiles, structured products in emissions trading and options trading); third-party trading portfolio management (risk management and portfolio optimisation, order execution, definition and implementation of hedging strategies, market monitoring and green marketing activities).

Mr Matteo Calvi, founder and CEO of Edelweiss Energia, described the company to Market Player as one of the most active Italian trading firms with a €865 million turnover in 2012. “Regarding our credit rating, we have been recently audited by one of the most important Italian rating firms which stated that Edelweiss’ rating is better than 98% of the companies subject to their rating in the energy sector, and that the probability of insolvency of Edelweiss Energia is very low (0.37%),” he said. “A strict risk-management approach has contributed to reaching this target. Our assets are more than adequate to manage the daily business and our business plan.”

The company trades on regulated markets such as IPEX, EXAA, EEX, EPEX, SouthPool, Borzen, Desmie and has access to the main OTC platforms (electronic and on-voice) on an EFET Master Agreement basis. Besides cross-border trading, Edelweiss Energia is active in trading physical and financial standard products on the whole curve and in trading physical and financial structured products (profiles, with optionality, fuel indexed products, etc.). But the area Edelweiss is exploring for trading development is South East Europe (SEE), especially the former Yugoslavian republics. “We are working on developing a trading platform in the Balkan region starting from Croatia and then expanding progressively our trading activities in the SEE region,” said Mr Calvi.

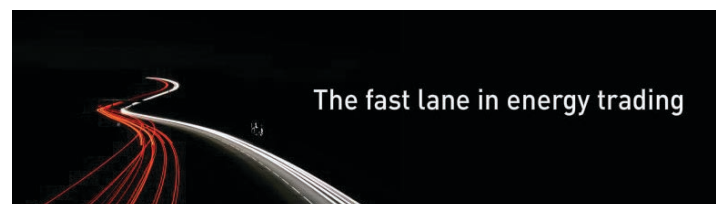
Power prices in Southeast Europe are highly volatile in the short-term (the day-ahead and intraday market). Since Edelweiss is involved with cross-border trading, Mr Calvi explained his views on proprietary trading in time spreads as well international market spreads. “Volatility creates an opportunity for a trader. We are used to managing short-term volatility and we try every day to take a profit from price fluctuation. When it comes to taking opportunities from short-term, cross-border volatility, it is a completely different issue. Currently there are very few borders that allow cross-border intraday trading (like, for example, the French–German border

or the Swiss–German border) as this is possible only within two or more coordinated and integrated markets.”



The launch of the national electricity exchange announced for Q1 2014 in Croatia and Q3 2014 in Serbia is, Mr Calvi said, an asset to these countries’ markets. “Developing a liquid, transparent, integrated and efficient market brings, without any doubt, in the long run, a positive result for traders, final clients and producers. It is a must-have asset for a country in particular for those who have an overall high energy bill.” Mr Calvi explained the importance of the exchange in arousing the interest of Edelweiss in the Croatian market: “We will try to contribute to the development of liquidity in the wholesale market. We strongly support everywhere the introduction of at least one regulated energy market beside traditional OTC markets.” He also considers Serbia’s plan to initiate electricity exchange to be a good move that would make the Serbian power market similar to the EU power market.

Edelweiss trades all over the EU, but their home market is Italy, the country with the most expensive power in Europe. Mr Calvi spoke to Market Player about options for lowering power prices in Italy and whether the hydro potential of the Balkans could bring more affordable electric energy to this market. “We saw this year a significant decrease in spot prices in Italy,” he said. “This was driven by the fact that a relevant amount of new renewable production has come into force during 2013, in particular in Southern Italy. I believe the interconnection capacity between Italy and the Balkans will contribute more in stabilising the energy flows rather than decreasing prices in Italy. Europe (and individually each EU member) is now at a turning point: on the one hand a single harmonised market was stated to become operational as a target model for 2015. On the other hand, unfortunately, the EU is quite far from that model, in particular with regard to balancing and ancillary services market design.



D.H.

CRO Presenting the Company: Proenergy



Proenergy was founded in 2010 by a managerial team as an international energy trading holding company. It has vast experience of trading electricity in the wholesale market of south-east Europe and in the EU. Proenergy Holdings consists of companies that are fully licensed to transmit power and to bid for cross-border capacity in Serbia, Bosnia and Herzegovina, Macedonia and Croatia, but it is also active in the wholesale markets of Slovenia and Hungary. The company's main focus is arbitrage power trading, retail power supply, retail gas trading and supply, gas to power tolling agreements, power project development and reserve power trading.

Liberalisation of the electricity market in Croatia has attracted numerous players and many alternative suppliers. Proenergy is one of those "alternative" suppliers, providing services for over 500 primarily business customers. Its high quality of service with a guaranteed supply and competitive pricing makes Proenergy the best choice for many business users. Mr Marko Cosic, general manager of Proenergy, exclusively announced to Market Player that Proenergy will take a further step. Next year, Proenergy will become a supplier in the Croatian market for households as well. Proenergy Holdings plans to supply electricity to end users in Serbia and Macedonia as market liberalisation progresses. Company representatives are confident that stronger competition will benefit end users. New products will be developed, which could save users money when purchasing electricity.



But Proenergy is not a just a supplier, it also produces electricity from renewable energy sources. The company owns a wind farm with 35 MW of installed power near Zadar, Croatia, a project worth 50 million euros and developed with a partner private-equity company from London. Proenergy helped to build a hydropower plant in Bosnia and Herzegovina producing 5 MW and worth 10 million euros, and it is also developing a solar power plan for the Croatian market.





05 NEWS

SLO Overhaul of NE Krsko extended due to accident but returned on the grid. HEP and GEN-I forced to buy power from other sources

The regular overhaul of NE Krsko, launched on 1 October, was delayed for additional two weeks. The overhaul, scheduled to take 35 days, was delayed due to a fault detected during investigations. This fault caused the return of NE Krsko to its full operational level to be postponed and delayed the resumption of electric energy production intended for the Slovenian and Croatian markets.

Talking to **Market Player** Mr Martin Novsak, Director of the company GEN energija of GEN Group stated that the company has carefully planned electric energy trade during each outage of NE Krsko. "Ensuring the availability of alternative electricity supplies from non-nuclear sources was carefully planned in advance. In addition, we compensate for the shortfall with increased production in our own hydropower plants, and the rest is imported from the wider region of Southeast Europe and the EU," said Mr Novsak.

Market Player has discovered, at the time of this news item (second week of November), that two major factors are currently running in favour of GEN and HEP: reduced consumption due to unexpected warm weather for November, and current rainfall, improving hydrology and production at hydropower plants on the Sava river.

The malfunction, which was detected on 8 October, occurred when a nuclear fuel rod broke and plunged to the bottom of the water-filled reactor pool. Each fuel rod, the basic nuclear fuel element in the reactor, consists of a 50cm metal tube filled with radioactive pellets. If the rod is damaged or not properly sealed, radioactive substances can leak into the primary circuit water, which can cause severe breakdowns in the plant. NE Krsko has 235 fuel rods, connected into 121 fuel elements, 56 of which were planned for replacement this year. Immediately on identification of the breakdown, NE Krsko management invited a team of French experts to examine the reactor's cooling pool using a special underwater robot. The team removed all remains of the broken rod and placed them in a special container within the pool.

In his statement for the Croatian publication "Jutarnji List", Andrej Stritar, director of the Slovenian state directorate for nuclear security, admitted that the incident was merely a symptom of a problem that has been on-going for at least a year. "Increased radioactivity in the reactor's cooling water was first noticed on 18 July 2012, but to a very small extent. The radiation levels were well below the permitted maximum; therefore we took no action. However, we continued to monitor the situation. We found that radioactivity increased over the year," said Stritar. When asked why they did not

react immediately, Stritar explained that it was not possible to approach the reactor, so they waited for the regular annual overhaul.

At the press conference held on 25 October regarding the breakdown at the plant, NE Krsko Chairman, Stane Rozman, stated that the damage was greater than previously thought, but that there was no leak into the environment. "There were no consequences to workers and the environment, and radioactivity levels in the Sava River were not increased due to the incident," said Rozman. According to the Slovenian portal ePosavje, he also explained that the safety of the plant is not compromised by the incident, as damage to nuclear fuel rods in the plant is nothing exceptional. "Nuclear safety in the Krsko plant has never been brought into question," said Rozman.

At the conference it was revealed that the breakdown of the rods was precipitated by vibrations that broke one rod and damaged three in total. The problem will be temporarily repaired by stabilization of the fuel rods, and permanently resolved during the overhaul in 2015, when minor reconstruction of the internal components of the reactor will mean that vibrations will be permanently removed. Rozman announced that the damaged rods will be fixed and the stability of the reactor secured. He also stressed that the short-term measures are sufficient to ensure the safety and stability of the NE, but that this year's regular overhaul, planned to take 35 days, will be postponed for at least a week.

According to the Croatian Novi List, Director of Croatian Electric Power, Tomislav Seric, said that it was good that the problems in the nuclear plant were detected during the regular overhaul, adding that NE Krsko is an exceptionally safe nuclear plant. He also pointed out that the extended duration of the overhaul would mean additional costs for HEP, as it will have to compensate for its usual supply from NE Krsko by purchasing from the electric energy market. In fact, NE Krsko meets about 21% of Croatian electricity needs, while its share of the Slovenian market is around 30%.

NE Krsko is approximately 30km from Zagreb and around 60km from Ljubljana. This is not the first breakdown to occur at this facility; the reactor was shut down five years ago due to a coolant leak, and in February of this year there was a drop in pressure in the steam generator.

Just before the closing of this news item, as stated in press release from NEK's website, The Krsko Nuclear Power Plant was brought back online on 19.11.2013 following an extended scheduled outage during which measures were taken to

ensure its continued safe operation. The operating power of the plant will be gradually increased in the coming days to its full capacity in line with the standard procedure. During the month and a half long outage, the plant underwent maintenance work and technological upgrade that the NEK said provided a good basis for the plant's continued safe and stable operation. The operation featured a series of preventive maintenance works designed to increase the safety and stability of operation and 30 modifications to upgrade nuclear safety and further reduce risks.

NE Krsko was built in 1983, and at the last European safety test it was declared the safest nuclear plant in Europe. The total installed power of NE Krsko is around 696 MW, while the average annual production is 5,100 GW. Ownership of NE Krsko is divided equally between the Croatian Electrical Industry and Slovenian company GEN Energy, each having the right to use 50% of its electricity production.

B.K.

SRB Serbian market and grid operator EMS confirmed its intention to open the electricity exchange in 2014

The announced opening of the electricity exchange is in its initial stage, and the implementation of the project is being done together by Serbian power grid Elektromreza Srbije (EMS), Ministry of Energy and Energy Agency of the Republic of Serbia (AERS). Opening of the electricity exchange offers multiple benefits to the Serbian energy market, among which the most important are: ability of hourly balancing of surpluses and shortages for the electric energy suppliers in the domestic market, reduction of risk for big consumers of the electric energy in case they decide to participate as a balance responsible party and to supply directly from the market, reduction of the national company's monopoly on prices of the electric energy, increasing competition and free forming of electric energy prices, potential for additional revenue for the national company in case it decides to support the electricity exchange as a "market maker" (participant ready to assess the value of electric energy at all times, when offered to buy or sell to another participant). Opening of electricity exchange will go in parallel with the additional liberalization of Serbian electric energy market until 2014, when more electric energy buyers who will be able to choose their supplier are expected to emerge.

Serbian Energy Agency, as a regulatory body in energetics, offers full support to the opening of the electric electricity exchange. "We support opening of the electricity exchange, because it will lead to creation of a more dynamic market, increase competition and reduce prices", says Ljiljana Hadzibabic of the Energy Agency for **Market Player**.

Market Player asked whether the electricity exchange should be administered by a new operator, independent from the existing energy subjects instead of electricity grid operator? Ms Hadzibabic answered that the initial idea was to have the electricity exchange administered by an independent operator, but due to lack of educated staff and an appropriate body, it was decided to have the electricity exchange administered by the operator of the transmission system EMS (had been awarded the market operator status), while after some time independent institutions for administering of the electricity exchange would be formed. Hadzibabic added that there is still no official government decision on opening of electricity exchange.

As announced by Director General of Serbian power grid,

Nikola Petrovic, in his statement, the electricity exchange will have dry start from beginning of the next year, and will officially be open for participants in the third quarter of 2014. That will help Serbia to establish its road towards the EU, where the electric energy market and energy in general are very important component of the accession negotiations.

According to MR Petrovic's words, EMS was interested in the French EPEX Spot model (www.epexspot.com). EMS is ready to offer co-ownership in the project to the French EPEX up to 50%, announces Petrovic, which **Market Player** makes conclude that there is room for private capital in the ownership structure,. It is still unclear whether the future the electricity exchange will be a joint stock company and where it will be listed (in Serbia or outside Serbian borders) or there will be a third solution.

In Rudnap Group, one of the biggest Serbian power trader, they also point out that opening of the electricity exchange is a step in a right direction for Serbian market. "Rudnap Group supports all efforts and every progress that aim at achieving liquidity, liberalization of the market and harmonization with the standards of the European Union", says Mr Marko Curcic of the Rudnap Group for **Market Player**.

How the opening of the electricity exchange will influence the liquidity of the market, we asked. Mr Curcic said for Market Player that every electricity exchange improves liquidity, if the electricity exchange itself is liquid, but that depends on those who organize the electricity exchange and on type of contracts it will provide for its improvement. "We need to find a market maker who will always bid for the purchase and sale of electricity," said Curcic.

Curcic added that the opening of the electricity exchange would give a more realistic picture on the market prices of the electric energy and show how much the market is really worth, stressing that Rudnap Group would definitely participate in the new electricity exchange.

With the end of last October, the Ministry of Energy had announced the opening of the electricity exchange since the beginning of the next year, and the future name of the electricity exchange should be SERPEX.

B.K.

SRB Energy strategy of SEE – 35 projects worth 30 billion euros

During the eleventh session held in Belgrade at the end of October Ministry council of Energy Community sustained energy strategy for Southeast Europe (SEE). The strategy is made of 35 projects whose overall value is estimated to 30 billion euros. It was deliberated of hundred projects. In electro energy sector 14 projects were chosen, and seven of them are Serbian.

Serbian minister of Energy Zorana Mihajlovic explained in electro energy sector projects refer to 5,000 MW of production, and that Serbia will produce 2,400 MW. She declared that this is very important strategy since entire SEE region is facing the problem of deficit of electric energy since 2001.

Some of the projects of Serbian Ministry of Energy that could be involved in this strategy, since qualified as projects of strategic importance are building of hydro power plant Bistrica, building of thermo power plant Nikola Tesla B3, surface exploration of coal at Radljevo site, building of hydro plants Djerdap 3, Ibar and Middle Drina, thermo plant and mine Stavalj, trans-Balkans corridor – the interconnection of 400 kV between Serbia, BiH and Montenegro. Representatives of eight countries within Energy Community in charged for energy sector - Albania, BiH, Macedonia, Moldova,

UNMIK Kosovo, Montenegro, Serbia, Ukraine and Gunther Oettinger, European Commissioner for Energy gathered at Ministry council, decided upon prolonging the use of the Agreement of Energy Community for another ten years, until 2026, instead of 2016. Serbian minister of Energy, Zorana Mihajlovic emphasized the importance of sustained Directive of gradual removal of thermo capacities with negative influence on environment. Deadline for thermo capacities removal is set for 2027, which will give the countries enough time to create appropriate mix of other available resources. "If we would stop using the "dirty" energy produced from thermo power plants and coal, we would lose half of current production of electric energy in Serbia," said Zorana Mihajlovic. She also mentioned that appliance of the Directive doesn't refer to abandoning the projects such as the building of new objects like thermo power plant Stavalj that will use black coal or like shutting down thermo power plant Nikola Tesla (TENT), where the process of desulphurization will be used. Initially it was planned that thermo capacities will be put out of production by 2018, however this would be unbearable for the Balkans energy systems, so the deadline is rescheduled for almost ten years.

D.H.

SRB The Electric Power Industry of Serbia (EPS): Largest current investments

Another 350 MW to be added to TPP Kostolac B

The Board of Directors of the Electric Power Industry of Serbia (EPS) public utility agreed on 5 November to the signing of a contractual agreement for the second phase of the Kostolac B Thermal Power Plant project. This phase encapsulates the building of a new block, B3, with a generating capacity of 350 MW and expansion of coal production at the Drmno mine from 9 to 12 million tons per year. The total investment value of the project is 527,7 million euro, and the new block should be on the grid by the end of 2019.

Prior to the closing of this news item, a contract was signed at the Serbian government headquarters on 20.11.2013 concerning the construction of a new third block at the Thermal power plant Kostolac, which will have an output of 350 MW, and also on the expansion of the open-cast mine Drmno, which will bring its production up from 9 to 12 million tonnes of coal per year. EPS Acting Director Aleksandar Obradovic, TPP Kostolac Director Dragan Jovanovic and Director of CMEC from China Zhang Chun signed the contract. Serbia's Minister of Energy Zorana Mihajlovic, Transport Minister Aleksandar Antic and Chinese Ambassador to Serbia Zhang Wanxue were also at the signing.

Minister of Energy Zorana Mihajlovic announced that the new thermal power plant will provide energy stability to Serbia and once completed, in 2019, it will supply around 20 percent of the necessary power together with the nearby blocks Kostolac B1 and B2.

EPS Acting director Aleksandar Obradovic explained that the project is very important for EPS because it will enable meeting european directives concerning large combustion

plants and at the same time contributing to profitability of EPS.

Dragan Jovanovic, director of TPP-KO said that the signing of the contract for the construction of block B3 is a great success, but also an obligation for the company, noting that all activities and works related to the project should be completed within 58 months, so that in the end of 2019 the new power plant is to begin producing the electricity.

Zhang Chun, president and CEO of CMEC, emphasised that the new thermal power will not have an adverse impact upon the environment because gas emissions will comply with the requirements of the European Union scheduled for 2018. He also added that for the construction of a new block equipment manufactured by Chinese but also other renowned European manufacturers such as ABB and Siemens will be used.

According to the EPS, the contract has been signed with a Chinese company, China Machinery Electric Equipment, and involves a two-phase implementation plan. "Kostolac is currently our largest collaboration with a partner from China; in fact one of the biggest Chinese companies in the power plant construction industry. We signed a general contractual agreement with them in 2010, in which no special details were listed, but there is a general tentative agreement to run the project in two phases", our source at the utility stated.

First phase

Our source from the EPS adds for Market Player that the first phase of the contract is worth 253,7 million euros. "The first phase includes the overhaul of two blocks, B1 and B2, at Drmno, plus the installation of an ecological protection system handling the desulfurization of gas emissions in order

to meet EU standards. This phase also includes construction of a pier, where the limestone needed for the desulfurization process would be shipped and from which gypsum, the by-product of the process, would be transported. The pier would also be used for the delivery of equipment, and the contract provides for the construction of a section of railway. Refurbishment of B1 will cost 82.3 million euros, B2 47.6 million euros, and desulfurization 96.2 million euros. We are already deeply committed to the first phase, and the funds for B1 have already been drawn. All of this is funded by the Chinese development bank, which provided us with soft loans with a 3% fixed interest rate, a five-year grace period and a ten-year repayment period.”

Second phase

Our source further explains that the second phase will encapsulate construction of the third block at the Kostolac B plant, with a 350 MW generating capacity. “The second phase has been reduced to the construction of the new thermo capacities, and we are now at the end of this work. Two elements are in progress: a new contract was developed at the end of August, on the basis of the general agreement, and negotiations are now complete. The contract is worth 527,7 million euros. In the meantime, a feasibility study was adopted on 5 November by the EPS board, enabling implementation of the project to commence. An even better agreement regarding financial conditions with an interest rate of 2.5% is expected and the financial and technical issues have been ironed out. We have finished our part of the work and we expect the commercial contract to be signed by 15 December; on completion of this we expect the new 350 MW block to be developed at the same location as Drmno 3. This is a new generator and, all things considered, the costs total around 960,000 euros per MW, which is very competitive compared to Europe, where it is impossible to achieve costs of less than 1.5 million. All these prices are fixed for the first and the second phase”, says our EPS source.

Government confirmation to follow

Dejan Trifunovic, assistant to the Minister of Energy, Development and Environment Protection said that Serbian Government approval of the board’s decision is imminent, and the signing of the contract would follow.

Acting Director of the EPS, Aleksandar Obradovic stated: “This is a very important strategic project and a priority in the energy strategy of Serbia. Construction of the third block at TPP Kostolac B is also part of the strategic development of the EPS, and it is very important that at a time when the electric energy market is about to be opened up, new production capacities are available to contribute to the stability and safety of the Serbian energy system.”

“The last EPS block was inaugurated 23 years ago and that is why the decision to construct the new 350 MW block is historic”, said Dragan Jovanovic, Director of TPP Kostolac. He stressed that the project provides for compliance with all EU and Serbian energy standards, especially in the area of environmental protection.

Power Plants and Mines Kostolac d.o.o. comprises the following production facilities: Cirkovac surface mine, Drmno surface mine and the Kostolac A and B power plants. Kostolac A comprises two blocks: block A1 with a generating capacity of up to 100 MW and block A2 with a generating capacity of

210 MW. Kostolac B also has two blocks, B1 at 348.5 MW and B2 also with 348.5 MW. The new third block, B3, construction of which was the subject of the recent announcement, should have a total generating capacity of 350 MW.

Project HPP Bistrica

In addition to Kostolac, the EPS is already working on other projects, such as construction of the Bistrica hydro power plant, overhaul of hydro plants at Zvornik and Bajina Basta, as well as other projects. Among the listed projects, according to our source, construction of HPP Bistrica is the most valuable to the EPS. “In the case of Bistrica we are performing a feasibility study and creating technical documentation. We are at a pretty serious stage of preparation and there is considerable interest in joint investments. This is the best of our projects that are at the project planning stage. What makes the work much easier is the fact that no expropriation is necessary, because the area where the power plant will be built is sparsely populated. Total planned generating capacity is around 700 MW, and the project value is between 700 and 800 million euros. Some negotiations have already been conducted at the Ministry of Energy and many parties have expressed an interest, including companies from Canada, Norway and China. This is a reversible power plant that will produce the highest quality peak energy”, our source told **Market Player**.

Minister of Energy Zorana Mihajlovic has also stated that the priorities of the ministry are the 600 MW capacity Stavalj power plant, which will use top quality coal, such as lignite, to reduce harmful emissions, as well as the reversible hydro power plant Bistrica, also with a 600 MW capacity. She added that she expects pre-contracts to be secured for both projects by the end of the year. Prime Minister Ivica Dacic also stressed the strategic importance of the reversible hydro power plant Bistrica compared to all other energy sector investments.

Overhaul of HPP Zvornik

The overhaul of the Zvornik hydro power plant, financed by the German Development Bank KfW, is the second project on the list. “We have closed the tenders, chosen the best bidder and received an offer of 60 million euros; below the budget line of 70 million, which is very satisfactory. Second, and most important, this will be undertaken by the Austrian company Hidro Voith, the original deliverer of the equipment in 1954. We now have a small hiatus associated with additional guarantees requested by KfW. If these are secured, and I hope they will be, then we can proceed to the commencement of implementation by the end of the year. This project involves increased power generation: capacity will be increased from some 24 MW to 31–32 MW per block, noting that there are a total of four generators at HPP Zvornik.”

Director of the EPS, Aleksandar Obradovic announced that the overhaul of HPP Zvornik, for which the contract with the contractor was signed at the end of July, is in preparation and added that after modernization the generating power of the plant will be increased by 30 MW, and production of power by 15%.

Overhaul of HPP Bajina Basta completed

“Overhaul of HPP Bajina Basta, during which the repair of all four generators was conducted and new turbines and generators from Germany and Austria installed, was completed in October 2013. All four transformers, weighing 110

tons, were replaced, and the entire high voltage equipment was renovated. With the overhaul of HPP Bajina Basta we gained 50 MW, almost 15 MW per machine. The overhaul of the four generators was conducted by domestic companies in cooperation with the Austrian company Ajvis Hajder”, the EPS source told our newsletter.

During the opening ceremony for finalization of the overhaul of HPP Bajina Basta, Director of the EPS, Aleksandar Obradovic, pointed out that modernization of the plant increases its energy production by approximately 40 GWh per year. He went on to add that achieving an additional 52 MW of generating capacity, equivalent to building a very good small hydro plant, in the current harsh economic climate was no mean feat.

Obradovic also stated that “in the years to come, when the EPS will face competition in an open market, every kilowatt of energy will be crucial. That is why this modernization is important, because every additional MW and every kilowatt-hour produced will be an advantage over the competition. The EPS no longer holds a monopoly on high voltage, we kept 97% of the market, and in less than three months we will face competition on medium voltage. The EPS needs to adjust to market trading conditions in order to survive. The EPS is often perceived as a motor of industrial development and nobody is arguing with that, but the reorganized EPS can also achieve this goal.”

According to information on the HPP Bajina Basta website, the total value of the overhaul project is 77 million euros, of which 30 million euros were provided by KfW bank credits, and 47

million euros were provided by the EPS, while the contractor was the Austrian company Adriatic Hidro. Total installed power of this hydro power plant was increased from 386 MW to 420 MW thanks to the overhaul, and the service life extended for 30 to 40 years. In addition, annual production will be increased by 40 GWh, equivalent to the generating capacity of a new 52 MW hydro power plant.

Projects at TPP Nikola Tesla

Another important project brought to our attention by our source is financed by the Japanese Development Bank and Agency. “The project involves an investment in desulfurization at the TPP Nikola Tesla. The project is valued at over 250 million euros. The contract has been signed, we have prepared the tender documentation and we are awaiting approval from the Japanese Development Bank; after this is received, opening of the tender will follow”, explains the EPS source.

Our source adds that another project at TPP Nikola Tesla, financed by Swiss company Siemens is also in implementation. The project, we believe, involves digitalization of management at the plant: control of blocks B1 and B2 will be completely automated, replacing the current manual systems. The project is divided into two phases: the first phase is valued at approximately 7.3 million euros and the second at 5.4 million euros.

B.K.

SRB The Electric Power Industry of Serbia (EPS) announces opening of a new open-cast mine at Radljevo in the Kolubara basin

Due to the recent termination of production at its largest open-cast mine, the Kolubara mining basin is facing a growing shortage of coal with which to supply the Nikola Tesla power plant in Obrenovac, along with Kolubara A in Veliki Crljani and TPP Morava in Svilajnac. This has led the Electric Power Industry of Serbia (EPS) to pursue a policy of mine opening. Among these new mines is the Radljevo open-cast mine. Opening this pit should satisfy the needs of the aforementioned power plants, facilitate the long-term increase of their current production capacities and bridge the gaps in coal production in our largest mining basin, in which 52 per cent of electric energy in Serbia is produced. Notably, the Kolubara mining basin exploits coal from four open-cast mines: Field B, Field D, Tamnava-West Field and Veliki Crljeni.

Current situation in the Kolubara basin

In an exclusive statement for Market Player, Mr Vladimir Ivos, Head of the Monitoring and Investment Implementation Section of the EPS, gave an overview of the current state of the Kolubara basin and the main characteristics of the project to increase coal production. “Kolubara, as a producer of 30 million tons of coal per year, is a supplier of TPP Obrenovac and, to a lesser extent, Kolubara A. Around one million tons goes for consumer use, putting Kolubara in a difficult situation with regards to supplying industry, schools, etc. The biggest

open-cast mine has ceased production and there is a little more coal lying beneath the cemetery of Vreoci village. This village is scheduled for relocation and 400 million tons of coal lies beneath it. The issue of the local cemetery has already been solved and the excavation of the stripping above the coal has already begun, as well as the exploitation of the coal itself”, Mr Ivos told **Market Player**.

Opening of Radljevo open-cast mine

However, existing reserves of coal at Vreoci village are not sufficient to enable Kolubara to supply the power plants in the event of future expansion of capacity. In order to meet the future needs of the end-consumers of coal, a new project for exploitation of new mines has been launched. “The solution for Kolubara is not to open a few smaller pits; rather opening the two new open-cast mines should compensate for the shortfall. These pits consist of Field E in the east of the basin, with slightly more difficult conditions and a greater depth (250–300 metres) and approximately 300–400 million tons of coal reserves, and Radljevo in the west, with slightly more complicated excavation conditions and around 350 million tons of high quality deposits and around 20 million tons of low energy coal. We are not rich in water, sun or wind; but we do possess around 3.5 billion tons of coal, part of which lies in the Kostolac basin. In the Dubravica basin, where a study of reserves is

still in progress, 500 million tons of lignite lies unexploited. A stable future and expansion of electric energy production can be built on that coal”, explains Mr Ivos for **Market Player**.

The Kolubara basin has sufficient coal reserves to satisfy the annual coal consumption needs of the Serbian electric energy market. According to Mr Ivos, existing reserves are sufficient for the current capacities of Kolubara’s main consumers of coal, but not large enough to supply any new facilities. “With regard to Kolubara, as far as I know, TPP Nikola Tesla B3 and Kolubara B are in a very problematic state, and I do not know if they will be built. Their chances of being built are slim because, among other reasons, of the limited amount of coal available at Kolubara. Even with these newly announced projects for new pits, we are speaking of around one million tons that can be excavated. These amounts are, taking into account consumption of around thirty million tons per year, only sufficient for current requirements and it would not be realistic to expect that we could plan for larger capacities on the basis of this coal.”

Ivos states for **Market Player** that the new open-cast mine, Radljevo, was originally designed to supply new facilities at Kolubara B and TPP Nikola Tesla B3, and also partly to compensate for the loss of coal from Kolubara that would affect its existing delivery commitments to TPP Nikola Tesla. “Six million tons is needed for Kolubara to compensate for the existing shortfall and 7 million is already reserved for the facilities that are yet to be built. We know that the second case will not go smoothly, yet this open-cast pit must open because of the evident lack of coal for the existing thermo blocks.”

Originally the first phase of Radljevo was planned to exploit 13 million tons of coal, but the idea was quickly abandoned, and the reserves in the initial phase were adjusted to the current needs. “We will not build the full projected capacity of 13 million tons, but will reduce to 5–7 million tons of coal in the first phase for Radljevo, and the numbers will automatically move back. If the starting number is 700 million for the full capacity of 13 million tons, a number of around 300 million or less would be projected for implementation of the first phase”, Ivos further explained.

Funding for the open-cast Radljevo project

Kolubara is currently in a crisis situation that could temporarily be solved by opening smaller open-cast pits, but there is an urgent need for long term solutions that would enable security of coal supply for the main consumers of this mining basin. The long-term solution for this problem is hampered by a lack of adequate funds for the implementation of the project. “Everything depends on how the situation will be further addressed; whether Kolubara will open another smaller mine to bridge the crisis situation. These would be smaller deposits of 20–30 tons that last a maximum of 5–6 years. We would then need to decide how to proceed. The future of Kolubara lies in stable production from three surface pits, with a possible yield of 12 million tons of coal each. It is possible that the three pits will yield less than 12 million but that is what we need as a safety reserve. These pits would consist of Radljevo, open-cast Field E and West Field. The success of our strategy in

Kolubara depends on the investment that we can provide. The EPS is currently not able to provide large sums of money, since the total amount available for investment within EPS is 300–400 million euros. Everything depends on the credit lines and on whom we can interest in this investment”, said Mr Ivos.

The original idea for the project and construction of the open-cast Radljevo mine involved collaboration with a foreign investor, due to lack of funds. However, the state is the only investor available at present. “The state is normally interested in construction of the mine. The pit was supposed be part of a package (thermo block and an open-cast mine); TPP Kolubara B and TPP NT B3 were supposed to be built in conjunction with a foreign investor, with a 50–50 per cent or 49–51 per cent ownership structure, as part of which the foreign partner would provide the funds for construction of the surface pit as originally designed. We definitely have not attracted an investor for either of these power plants, and we are forced to take on development of this pit. The only possible option is to open the pit with our own funds or from credits from the Russians, Chinese or some other arrangement. Considering that the EBRD bank, who have invested a great deal in this region, has a policy of financing only green projects, and coal is not in itself such a resource, we cannot expect any developments in that direction. The only possible option remaining is that the state, through the EPS, commences implementation of the project using its own funds”, Ivos explained to **Market Player**.

Opening phases

The timeline for implementation of the Radljevo open-cast mine will depend on many factors. Ivos told us, “Radljevo will open in phases. If completely new mechanization is used, the construction of one mullock excavation system lasts for at least two years. If we add to that time for contracting and tenders (six months to one year) we would need a minimum of three years to form the system, which still leaves us short of the beginning of production. There are many activities to be completed prior to work beginning: expropriation, relocation of waterways, roads, private land, transmission lines and substations, etc. After two years of mullock excavation work, conditions would enable descending of a new dredge, which would initiate coal production. In my opinion, at least four years are needed for work to begin using new equipment. We could shorten this timeframe by using the equipment from one of the closed pits. This would call for relocation of the mechanization, its overhaul, and possibly dismantling and re-assembling.” Ivos adds that the coal production price is around 14–15 euros per ton, whereby there will be efforts to reduce the price to a level below 11 euros per ton, which is a European standard.

Our source also played down the ecological consequences of opening the new Radljevo mine. He stated that Kolubara has no environmental issues and that this basin is not a cause of pollution. Degradation of agricultural land is a problem, but various recultivation projects are designed to alleviate this issue. He adds that coal desulfurization is currently planned for blocks B1 and B2 at Obrenovac, in line with EU standards.

EBRD green project and KfW Bank loans

We also spoke to our source about another project, which concerns the homogenization of the coal in Kolubara. The goal of the project is to improve the environment and increase the performance of mines and power plants, whereby 154 million euros of funds have been provided by the EBRD and KfW bank for the project. "The EBRD and KfW Bank loan was obtained for one ECT system (excavator, conveyer, and tray) in the eastern part of the field C slot, where we provisionally have higher quality coal. In the western part of the basin, homogenization would be performed by the supplier, because in the western part of the slot, which includes Radljevo and West field, we have a problem with the stratified coal, where a large number of small interlayers dilute the total calorific value of the coal. This is where the homogenization of the coal, financed by the KfW Bank funds, is required. The ECT system will be used in Field C, which is the beginning of the opening of Field E; the system would work on identification of larger quantities of high quality coal in the field. EBRD funds totalling 80 million euros have been supplied for most of the project, while a KfW

Bank loan of 65 million is planned for the remainder plus 9 million in donations, making 74 million euros in total. There is a plan for one stacker for the Tamnava field that would be used for disposal of waste rock, as well as the equipment for the landfill, machines, control room, crusher and so on." Ivos adds for Market Player that all contracts financed by EBRD funds are signed and the implementation of these projects is in progress with one million euros saved. He further stated that the second phase involves implementation of the KfW Bank loan for the coal landfill and homogenization or quality control, so that the lower quality deposits could be brought to sufficient quality to supply power plants. He also pointed out that homogenization of the coal is important for power plants to ensure consistent quality of the coal. This will enable the power plants to avoid intervening with crude oil, decreasing costs normally associated with the increased burning of mazut and other petroleum products. Ivos also added that the EBRD project was rated one of the best and that it greatly reduces carbon dioxide emissions into the atmosphere.

B.K.

SRB Maintenance of Djerdap hydroelectric power plants will be successfully finished by the end of the year

At the hydroelectric power plants Djerdap 1 and Djerdap 2, work to overhaul the water turbines will be finished by the end of the year. The biggest hydroelectric power plants on the Danube will finish the year running at full capacity and they will efficiently exploit the hydroelectric potential of the Danube's Djerdap.

"At HPP Djerdap 1, maintenance and inspection of water turbine no. 6 and the replacement of the block transformer no. 3 is currently in progress. On 4 November, HPP Djerdap 1 will be completed with five water turbines in operation, and from 12 November the fifth water turbine will undergo overhaul which will last for 13 months. Overhaul of aggregates A4 and A6 at HPP Djerdap 1 is complete. Five water turbines are in operation, and A5 will commence disassembly and assembly, or overhaul", said Slobodan Stamenov, director of Directorate for production in Economic Association HPP Djerdap for Market Player.

At HPP Djerdap 2, "maintenance of water turbine no. 7 is in progress. It should finish maintenance and become operational on 13 December 2013. At HPP Djerdap 2, aggregate A1 is undergoing light maintenance and it will join the network on 8 November 2013.", Stamenov added.

HP Pirot and HPP Vlasina are also part of EA HPP Djerdap system. Overhaul of the water turbines at HPP Vlasina and HPP Pirot were completed recently enabling them to work at full capacity, Stamenov explained.

He added that at the Vlasina hydroelectric power plants, as of 28 October the maintenance of nine water turbines would soon be complete and that the tenth water turbine is

undergoing a test run. It will be ready for operation after a few days of tests. "This means that HP Djerdap 2 will remain under light maintenance of water turbine no. 7 until 13 December 2013., HPP Djerdap 1 will also undergo maintenance of water turbine no. 6 until 4 November, and then we are finished", Stamenov stressed.

Maintenance of the ship lock in Djerdap 1, which will last until 2 December, is also in progress.

EA HPP Djerdap has four hydroelectric power plants, which are fully owned by Serbia: HP Djerdap 1, which is the backbone of whole system, HPP Djerdap 2, which is 80 km downstream from Djerdap 1, HPP Pirot and HPP Vlasina.

HPP Djerdap 1 has six water turbines producing a total installed power of 1.080 MW. Annual planned production of electrical energy in HPP Djerdap 1 is 5.349 GWh. HPP Djerdap 2 produces a total installed power of 270 MW from 10 water turbines or 1.527 GWh of annual planned production of electrical energy. HPP Pirot has two water turbines with a total power of 80 MW or a total planned annual production of 52 GWh while HPP Vlasina has 10 water turbines with a total installed power of 129 MW and planned annual production of electrical energy of 164 GWh. There is also the pump plant the task of which is to re-pump the waters, when necessary, from Lake Lisina into Lake Vlasina which is the main storage reservoir of hydro power plants on the River Vlasina. These four HPPs produce 18-23% of the total electrical energy in the EPS system.

B.K.

SEE 60 billion euros to be invested in the Balkan energy sector by 2030

Around 60 billion euros should be invested in the Balkan energy industry by 2030, as this field is the driving force of the region's economy, said Kirill Kravchenko, CEO of NIS. He was speaking at "Energy Arena 2013" in Belgrade, which was run under the auspices of the Serbian Prime Minister, Ivica Dačić. Kravchenko also stated that this goal could be achieved thanks to intensified cooperation between regional energy companies.

"Energy is the driving force of the Balkans' regional economies since eight of the ten largest regional companies operate in this domain. Energy is the source of the biggest investments and tax revenues for the state, while energy companies are the largest employers," said Kravchenko. Due to its size, the energy sector is capable of accelerating regional integration and macroeconomic growth, even in the current crisis condition. Comparing the Balkan region to Central Europe, he spoke of the potential to double the energy efficiency and energy capacity of the region.

The Serbian Prime Minister also spoke positively of the energy sector, while reminding everyone that energy is a primary field, with a current growth of one or two percent. He also said that the Serbian government hopes to increase the sector's growth by between three and five percent from 2015/16.

Serbian Minister of Energy, Development and Environmental Protection, Zorana Mihajlović declared that when it comes to

energy, Serbia hopes to use its geography and to become a transit corridor for energy and energy-producing products, as well as an exporter of electric energy by 2020. Serbia's goal is to provide energy and energy-producing products at competitive prices, so that it is affordable for the country's entire population. She also spoke of the legal regulations Serbia has implemented recently, in particular the framework for the regulation of renewable energy sources. However, the critical issue in the energy sector is the time required in order to open new electric power and gas markets.

Mr Fabrizio Barbaso, the Deputy Director General for Energy at the European Commission, said that Serbian laws are compatible with EU legislation, but that it is extremely important for the country to open its energy market, to arouse competition, and to integrate its market with those of local and EU countries. "The Energy Community opens Europe's energy market beyond the EU border. As a result of market opening, millions of people in this region have additional rights and protection. Companies can operate in a situation of greater transparency. And the conditions for investment are improved, not least in the knowledge that investors are dealing with a market not of 10 million or even 50 million users, but a network of half a billion consumers," stated Barbaso.

D.H.

MK Macedonia announces opening of a new tender for the construction of Cebren (333 MW) and Galiste (197 MW) hydropower plants

The government of Macedonia has announced the opening of a new tender for construction of the Cebren and Galiste hydropower plants on Crna reka. According to the announcement, concessions for Crna reka water use will be awarded as a result of the tender, which is the tenth to be announced.

"In conditions in which we seek to lead an expeditious and efficient policy in the fields of water and energy, with particular emphasis on use of renewable energy sources, which have an enormous impact on security in energy supply and environment protection, the Ministry of Environment and Spatial Planning is accelerating its actions in implementation of this project," said Minister Abdulacim Ademi.

The Ministry of Environment and Spatial Planning, which is responsible for the tender announcement, had proposed amendments of the tender conditions to the Macedonian government. The government accepted the amendments and initiated the tender announcement process for the Crna reka concessions.

"We intend to announce the call for concessions for the use of water for production of electric energy from the power plant on Crna reka as soon as possible and we believe that potential concessionaries will be pleased with the amendments made to this tender," explained Ademi.

The minister added that the needs of the state and the demands of future concessionaries had to be taken into account when putting together the terms of water use for the Cebren and Galiste plants on Crna reka.

As Ademi explained, the tender for concessions predicts the construction of a dam at Cebren, which would be between 182.5 and 192.5 metres high, with a minimum total capacity of 333 MW, as well as construction of a dam at Orlov Kamen. "The minimum percentage in the joint company that the future concessionary should offer to AD ELEM (JSC Macedonian Power Plants) should not be under 35 per cent. When the Cebren power plant starts working at full capacity, prices for electric energy transfer paid to AD MEPSO will be fixed and valid for the entire concession period at the rates for 2013,

amounting to 4.4 euros per MWh. Tikves hydropower plant will be handed over for concessions three months after signing of the concession contract,” said Minister Ademi, adding that the new tender leaves the possibility of construction of the Galiste plant open, depending on whether the government deems it necessary in the future. Ademi announced that with these changes, the government expects successful implementation of the tender and selection of a company to implement the project.

All relevant institutions responsible for water, energy, economy, transport and finance will be included in the concession granting procedure, Ademi announced. In addition, he said that an important role will be given to the International Finance Corporation, which will confirm the predicted amendments to the tender documentation. Ademi also added that the tender will be announced in domestic media and one foreign newspaper.

According to information on the Macedonian ELEM website, Cebren HPP, which was conceived as a reversible hydropower plant, should have a total installed capacity of 333 MW for

turbines and 347 MW for a pump with an average production of electric energy of 840.3 GWh and investment of 318.5 million euros. Construction of this power plant should take six years.

Galiste hydropower plant will have an average power generation of 262.5 GWh, with a capacity of 193.5 MW and investment of 200.2 million euros. The construction deadline for the plant would be seven years. The existing power plant, Tikves, has a total installed power of 116 MW and annual production of 184 GWh. Construction of the Cebren and Galiste plants would enable maximum use of Crna reka with a total installed power of 640.5 MW and annual production of 1,286.5 GWh. ELEM Macedonian Power Plants AD is a company governing power plants and production of electric energy in the country and was founded through the restructuring of the Macedonian Energy System in 2005.

B.K.

TUR The first Turkish nuclear plant to be commissioned in 2023

Turkey has one of the world’s fastest growing economies, yet it is a country dependent on imports of natural gas, oil and coal. Energy dependence would be significantly decreased if Turkey started producing nuclear energy, and the first such power plant should be commissioned in 2023, officials recently announced. Turkey has been reconsidering nuclear energy as an option for energy production since the mid-seventies. Turkish Prime minister, Tayyip Erdogan is the main advocate of an ambitious nuclear programme which would provide at least 10% of the country’s energy requirements and would decrease Turkey’s dependence on expensive hydrocarbon imports. Demand and consumption continue to increase. Last year consumption rose by 5% to 242 TWh and estimated growth of energy demand is second in the world, behind only China. Last year Turkey imported 60 billion dollars’ worth of energy and an additional estimated 3,500 MW of installed power is required to meet the country’s needs.

Nuclear power plant position in the electricity market

Mr Bakatjan Sandalkhan, Board Member of the Energy Traders Association and former Vice President of RWE Turkey spoke to Market Player about the necessity of a nuclear power plant in Turkey. “Considering available domestic resources in Turkey, which are very limited, and the government policy to reduce import dependency of energy resources, growing demand of energy should be met with all sources, including nuclear. The question is not whether nuclear is necessary but how much nuclear energy Turkey may need”, said Mr Sandalkhan.

“A nuclear power plant would certainly influence prices

of electric energy, but it is not the only factor that should be considered“, Mr Sandalkhan added. “Half of nuclear generation is under Public Procurement Authority (PPA) with the state-owned wholesale company Turkish Electricity Trading and Contracting Company (TETAS) and the remaining half will be in the wholesale market. It will flatten the merit order and reduce the wholesale price. However, the impact can be assessed with other generation mix development, especially renewables like solar and wind.”

The first nuclear power plant that will be commissioned is the Akuyyu plant, in the Mersin region on the Mediterranean coast. According to an agreement signed in May 2010 by Russia and Turkey, Akkuyu NGS Elektrik Uretim Corp, a Rosatom subsidiary, was founded in order to own, build and operate the power plant. Initially 100%of the company would be directly or indirectly owned by companies whose participation was approved by Russia, and afterwards 49%would be sold to interested investors while the Russian side would keep 51% of the company. The power plant will have four VVER (voda voda energo reactor) units of 1,200 MW, or 4,800 MW of installed power. After all four reactors become operational, the plant will produce 35 TWh/y. According to the agreement, TETAS will buy 70% of power produced from the first two reactors and 30%of power from the third and fourth reactors in the next 15 years, while the rest will be sold on the market. The expected life cycle of the Akuyyu plant is 60 years.

According to the initial plan, construction of the plant should have begun this year, but numerous bureaucratic obstacles were put in the way of the 20 million dollar project. Recently

the spotlight has fallen on the delay in acquiring the required licences as well as disputes about when the construction will actually begin and when the first reactor will be commissioned. “The schedule of this kind of mega project is always difficult to complete without significant delay. In my opinion, starting commercial operation in the first reactor in 2023 looks more plausible”, Mr Sandalkhan declared.

Recently, Akuyyu power plant officials announced that the first reactor will be commissioned in 2019, and all four units will be operational by 2023. Yet many consider it is more likely that the first reactor will start production in 2020, since a reactor of this size requires at least six to 12 months of testing. Aaron Stein, associate to the British Royal United Service Institute suggested that there are many issues with acquiring all the permits, creating enough space to be sceptical towards the new deadline that the company and government representatives have announced. “Let’s assume they’re going to go ahead with construction in 2016; that would still be three years to build one reactor and seven years to build all four. That is really, really fast”, said a sceptical Stein.

Seismic concerns

As is the case worldwide, especially after the recent incident in Fukushima, the public is afraid of potential catastrophe. Construction planning was followed by inevitable protests by environmentalists; one of the major public concerns is that the power plant will devastate the tourist potential of the region on the Mediterranean coast where it will be built. In addition, Turkey is often struck by earthquakes, not just in the continental part of the country, which was the case with the destructive quake that hit in 2011, but also on the coast. As a citizen Mr Sandalkhan understands the public’s concern but also understands the technical rationality behind these projects. “As a citizen, I am worried about the safety and environmental impacts during construction, operation and after decommissioning, which covers 80–100 years. As an energy professional, I can see the technical rationale behind the necessity of base load generation capacity for the growing economy. “

Three different companies and institutions, including the Turkish Kandili earthquake observatory, have already performed seismic and hydrological testing of the ground. According to Akuyyu plant officials, all tests have similar results – the area is safe from earthquakes. However, the analysis on environmental impact will be performed early next year, and Rosatom’s report on environmental protection, demanded by Turkish authorities, will be submitted to the Ministry of Environment during November; a delay of a couple of months. The report was previously submitted yet returned with numerous questions, suggestions and comments. Without the Ministry’s approval Atomstroyexport, the main subcontractor of Rosatom, can’t open tenders for subcontractors worth 7.5 to 8 billion dollars. Hopefully, the necessary paperwork will be submitted and tenders opened in late November.

Approximately 10,000 people will be employed on the construction site alone; while the company will employ another 2,000. This creates enough space for Turkish companies to participate as subcontractors. Alexandar Superfin, CEO of the Akuyyu nuclear plant, recently announced that he expects the Turkish Atomic Energy Authority to provide them with a construction licence in 2015, so that construction can begin in 2016. However, the tender opened by the Turkish Atomic Energy Authority in order to find the company that would examine and review Rosatom’s reactor plans and conclude whether the design is in compliance with required safety standards was cancelled on several occasions because companies that participated couldn’t meet the set criteria.

Investors involved

The matter of finance also requires attention. According to the plan, Turkish investors should be involved, as well as Turkish construction subcontractors. However, Mr Sandalkhan states that “the pulse” of Turkish industrials is not quite stable on this matter. “Turkish industry has mixed feelings about this matter. There are a lot of considerations in light of Fukushima and actions taken by western European countries afterwards. I think that Turkish construction companies will take part in this project; however technology and operation will be handled by Rosatom.” The Russian government, on the other hand, plans to invest 3 billion dollars in this project in 2015, which is significantly more than initially planned, in order to secure financing until new investors appear. “The first 700 billion was already spent in 2011, and another 700 million is to be spent by the end of the year”, Alexandar Superfin said when explaining how much Russia has invested. According to Superfin, Atomstroyexport has already negotiated with various Russian funds that might participate as creditors; while Rosatom invited Electricite de France SA (EDF) to invest. Turkish energy and construction companies are also in play; to invest or to participate in construction. Superfin has high hopes that in the next two years matters of financing will be resolved and investors will be even more interested after all ecological licences are obtained. Whatever happens, Rosatom will keep 51% of the company and if necessary finance the project on its own.

The building of a second nuclear power plant was arranged in mid-May with a Japanese–French consortium. Japanese companies, Mitsubishi Heavy Industries Ltd. and Itochu Corporation, in conjunction with the French GDF Suez, will build a 4,800 MW nuclear power plant in Sinop, on the Black Sea coast. The project is worth an estimated 22 million dollars. The first reactor should be active in 2023. Yet, considering all the obstacles and delays Rosatom has faced, it is not likely that the deadlines will be met for the Sinop plant either.

D.H.

SRB Building of South Stream in Serbia about to commence

A ceremony that marks the announcement of the South Stream project in Serbia is scheduled for 24 November in the village of Sajkas, Vojvodina. Three important agreements will be signed at the ceremony: agreement of public interest activity, a transport agreement concerning ownership of the gas capacities of the pipeline, and a credit agreement between the Srbijagas and South Stream companies. Construction is expected to commence on the site in February of 2014.

The beginning of construction had been expected to be set for December, yet the date of 24 November was chosen during a meeting between senior Serbian government officials and a delegation from the Russian energy firm Gazprom in mid-November. The delegation was led by chairman of the board of directors Alexey Miller, accompanied by Kirill Kravchenko, CEO of Oil Industry of Serbia (NIS). During a meeting with Serbian president Tomislav Nikolic, Miller declared that South Stream is one of the largest projects in Europe and thanked the Serbian side for their extensive efforts to resolve all issues and ensure that all necessary preparations were in place prior to the start of construction. During a meeting with the Serbian Prime minister, Ivica Dacic, the possibilities of directing one side of the pipeline to Macedonia, the other to the Republic of Srpska, and the third to Kosovo and Metohija were discussed. Mr Dacic stated that the building of the South Stream pipeline in Serbia is proof of Serbia's commitment to fulfill its Energy Agreement with the Russian Federation. "It's in Serbia's and Russia's best interest to fulfill that agreement. It is especially important to Serbia because it will enable the country to become the energy centre of the region", the prime minister commented. The Gazprom delegation spoke to the first vice president of the Serbian government, Aleksandar Vucic, about the importance of signing the finance and construction agreements for South Stream. They also discussed the agreement between Srbijagas and Gazprom. The parties also came to agreement on the importance of rescheduling existing debt by the end of the year.

A day later the Russian minister of defence, Sergey Shoygu, visited Serbia and spoke to Prime Minister Dacic about further improvement of the traditionally good relations between the two countries, especially with regard to future Russian investments in Serbia and economic cooperation.

During the same week, South Stream Serbia obtained the location permit for the first building phase, and the construction licence for the preparation activities on the Kovilj site, which was handed to CEO of South Stream Serbia, Dusan Bajatovic, by Serbian minister of construction, Velimir Ilic. However, project documentation is not yet complete, and as documentation is completed on a stage by stage basis permits will also be given as each stage is progressed. South Stream still doesn't have a main contractor for Serbia but the tender is expected to be released imminently, and the decision will be made shortly due to the ever-shrinking timeframe. It is likely that only one contractor, selected in a closed process, will be engaged in this project, and preference would be for a consortium of Russian and Serbian companies.

Russian credit will underpin the financing of the project:

next year South Stream Serbia will have 500 million euros at its disposal, which should be adequate for the project's requirements in 2014. Serbia obtained the credit on the same model as Bulgaria; the loan should be repaid in 20 to 30 years, and funds will come from gas transit with yearly interest of 4.25 per cent. "In Q1 2014 Russian Gazprom will provide credit of 175 million dollars, with collateral on future South Stream income. It will be deposited to Srbijagas capital, and the same amount will be given by Gazprom", said Dusan Bajatovic, general manager of Srbijagas. However, in the second half of the year the construction will require financing per project. This will necessitate use of commercial credits from Russian banks. "There will be no problems with repayment to Gazprom, because on invested capital each side has guaranteed profit of 8 per cent", said Bajatovic, "There is no doubt that we will charge full fees, tariffs and incomes when South Stream becomes functional, because according to one of the agreements, settled by senior representatives of both countries, 100 per cent of the pipeline capacity will be occupied by Gazprom using the 'full for empty or transport or pay' method in the next 25 years."

The South Stream transit pipeline is one of the largest projects and most valuable investments in Serbia in the past few decades. Construction will take place over the next two years and it should become operational in 2016. The project value was originally estimated at 1.7 billion euros, but the recent rise in the price of steel has raised the latest estimate to 1.95 billion euros.

The Serbian part of the South Stream pipeline stretches for 422.4 km. The branch pipeline to the Republic of Srpska is 105.8 km long, and the Croatian branch equals 52.8 km. The pipeline capacity is 40 billion cubic metres per year. The project requires the expropriation of 10,000 parcels of land; the Ministry of Energy of Serbia has stated that this matter is already resolved. The pipeline will enter Serbian territory from Bulgaria at Zajecar, and will exit to Hungary at Subotica. Beside branch pipelines to the Republic of Srpska and Croatia there is a possibility that two further branches, to Macedonia and Kosovo/Metohija, will be built. Construction of the Serbian part of the South Stream pipeline will be completed by the South Stream Serbia company, a joint venture between Srbijagas (with 49 per cent ownership) and Gazprom (51 per cent). A special purpose area plan has been prepared for the project and the Serbian government has also passed a bill which should speed up the expropriation process for South Stream.

Serbian public opinion favours the project, which is widely considered likely to bring Serbia a more prominent place on the energy map and provide the country with energy security. There is also the possibility of building gas power plants although this would require much higher electric energy prices on the regional market and much lower natural gas prices in order to make them profitable. As this is a transit pipeline, it is expected to raise income of a few hundred million euros per year.

D.H.

SRB New storage capacity of 25,000m³ opens on the banks of the Danube in Smederevo, Serbia

A modern storage facility for oil products, owned by Jet Oil Serbia, has been opened in the industrial zone of the city of Smederevo, on the banks of the Danube in Central Serbia.

The investors behind Jet Oil Serbia are Greek Mamid Oil-Jet Oil Hellenic Production with a share of 50.5%, Nafta AD from Belgrade with a 30% share and Mitan Handels from Switzerland with a 19.5% share.

Mr Vukovic, a director for Jet Oil Serbia, told Market Player that the total capacity at the storage site is 25,000 cubic metres, which will be used to store oil products, diesel and gasoline. Although the capacity was built primarily for the investors' own use, Vukovic doesn't exclude the possibility of renting the storage to interested traders.

Mr Nebojsa Atanackovic of Nafta AD told Market Player that the location of the storage facility was chosen because of the favourable geographical position of Smederevo. "We primarily searched for a location on the Danube because of the potential for water transportation. It is also very convenient for further distribution, because Smederevo is situated near Corridor 10. Additionally, thanks to the bridge to Kovin, the storage facility has an excellent connection to Vojvodina. The site is on the riverfront, right next to an embankment in the industrial zone, which has been completely adapted for the facility. The port has its own pier. The ships that transport the products will moor at a floating dock and the tanks will be filled

from there." Atanackovic announced that the storage facility will be used by Jet Oil Serbia and Nafta AD, and also by other interested parties. He pointed out that there was interest in holding the mandatory three months' state reserves and that the Oil Industry of Serbia (NIS) had expressed an interest in the facility.

The director-general of Jet Oil Serbia, George Stasis, said at the opening that this was a greenfield investment worth 10 million euros, adding that it was expected that this first phase of the project would employ 50 workers. It was envisaged that the second phase would double the capacity to a total of 50,000 cubic metres.

The opening of the new storage facility was attended by the Greek ambassador to Serbia, Konstantinos Ikonomidis, who stated that the construction of this site was a major investment. It was an opportunity not only for the Mamidakis Group, but for the whole region and the city of Smederevo.

It was stated during the opening that this facility run by Jet Oil Serbia, meets all of the environmental protection standards, as well as standards for the loading, unloading, storage and dispatch of products. The site complies with the minimum technical conditions for the petroleum products and biofuels trade, which obliges owners to have storage before they can trade in petroleum products.

B.K.

BG RO First Gas Interconnection for Bulgaria and Romania to be commissioned early in 2014

Bulgarian Deputy Minister of Economy and Energy, Ivan Ayolov, recently gave an update on the first gas interconnection between Romania and Bulgaria, "The first gas interconnection between Bulgaria and Romania is at the final construction stage and it is expected to be fully operational in early 2014," said the minister. He went on to say that he is strongly convinced that new gas interconnections between Balkan countries will boost economic development of Southeast Europe and prepare the region's energy sector for participation in the EU market.

The project is already more than six months behind schedule; the initial plan was to open the interconnection in May 2013. Interconnection Bulgaria-Romania (IBR) is a joint venture between the Bulgarian energy firm Bulgantransgaz and the Romanian Transgaz, partially co-financed from EU funds. When complete, the connection will be 23.8 km long; 15.4 km on the Bulgarian side and 7.2 km on Romanian territory, with 1.2 km passing under the River Danube. The project also requires the construction of two gas metering stations at Ruse and Giurgiu. According to the plan, the initial capacity of the

network will be 0.5 bcm/y (billion cubic metres a year), and the maximum technical capacity is 1.5 bcm/y. The estimated overall cost of the project is 224 million euros.

The Bulgarian government initiated the project after the dispute between Russia and Ukraine in 2009, which left Bulgaria without natural gas for three weeks. The EU-supported project plans to connect the Bulgarian pipeline with the pipelines of surrounding states – Romania, Serbia, Greece and Turkey. This will provide a stable supply of gas to Bulgaria, as well as enabling the country's participation in the natural gas market.

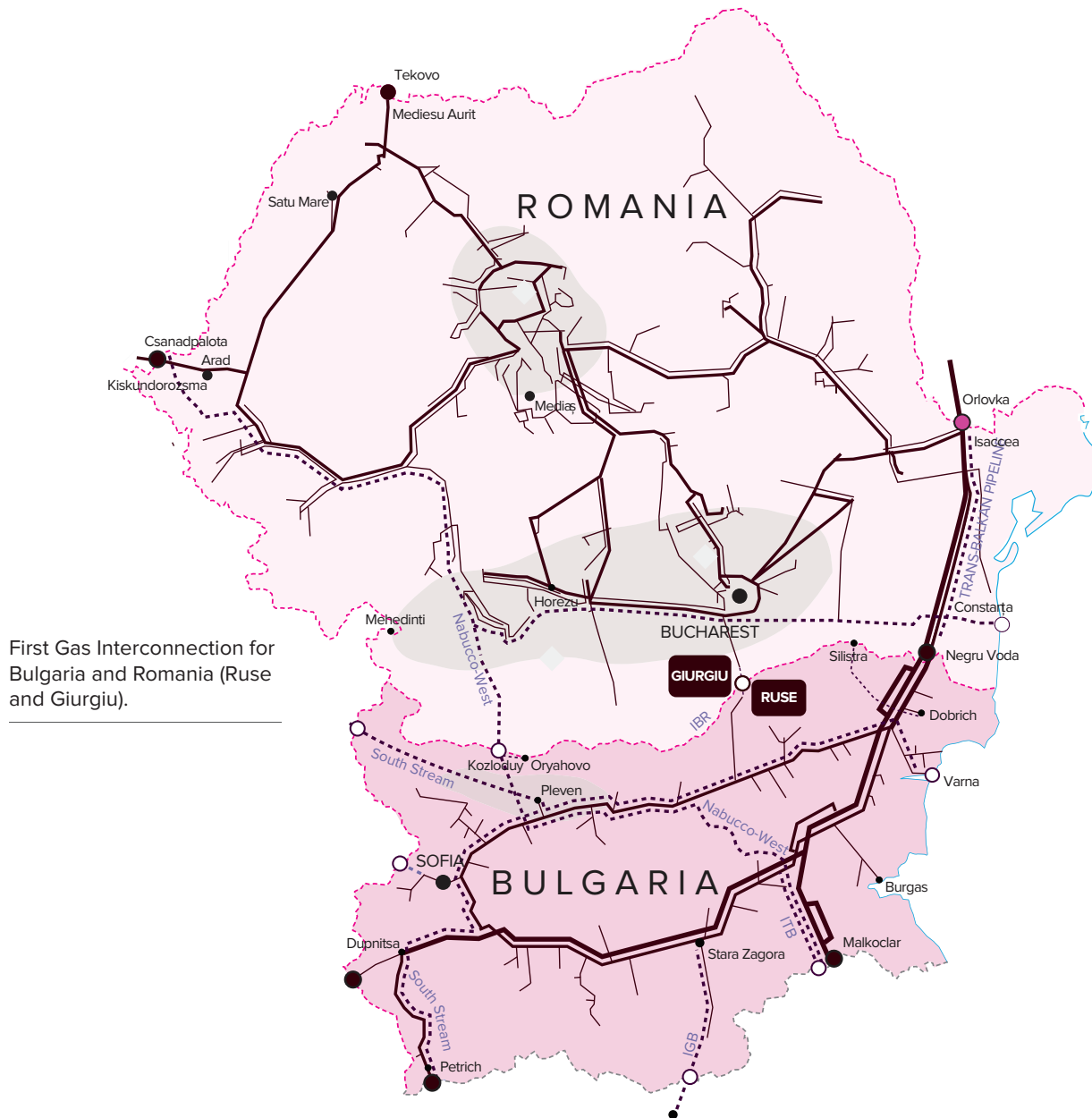
Romania has its own gas supply, produced by a subsidiary of OMV. OMV Petrom Gas supplies households and industrial users, partially from its own production, and partially thanks to a network of domestic and international suppliers. Due to the significant growth that the company registered in 2012, it now has more than 1600 employees and conducts exploration from approximately 120 wells. Important quantities of gas have been yielded by the company's Totea field. This discovery, together with the 42–85 bcm capacity Domino-1

well on the Black Sea, has made a significant contribution to the company's growth and stability of supply. The capacity and stability of the Romanian supplies enhance the strategic importance to Bulgaria of the link with the Romanian pipeline.

During a recent meeting, Dragomir Stoynev, Bulgarian Minister of Economy and Energy, and Zorana Mihajlovic, Serbian Minister of Energy, discussed the Nis-Dimitrovgrad-Dupnica interconnection. Scheduled for completion in 2017, this project will connect the two countries' pipelines. This interconnection

will be 180 km long with an annual capacity of 1.8 bcm, and the estimated value of the project is 120 million euros. The Serbian pipeline link will provide Bulgaria with an opportunity to acquire gas from the Hungarian and EU markets via the gas trading hub and natural gas storage facility at Baumgarten on the Austrian border. The enhanced attractiveness of short-term trading provided by this opportunity will optimise the pricing and balancing of the gas system.

D.H.



First Gas Interconnection for Bulgaria and Romania (Ruse and Giurgiu).

RO Romanian protests: Chevron suspend shale gas exploration in Romania; Gabriel Resources announce lawsuit

American energy company Chevron decided in mid October to suspend its exploration for shale gas on its Silistea site, in the Pungesti area of the Vaslui region. This followed mass protests by villagers that lasted for four days.

The demonstrations turned violent when trucks laden with equipment tried to enter the site of the future well.

“Our priority is to conduct these activities in a safe and

environmentally responsible manner consistent with the permits under which we operate”, stated the press release issued by Chevron. But the company did not indicate for how long the suspension would last. They declared that they are determined to develop constructive and positive relations within the communities in which they operate, yet emphasised that they have in place all the relevant licences and that exploration activities on block EV-2 would be conducted using conventional technology and in accord with those permits. Chevron obtained all the necessary licences for exploration on this and three other sites on the Black Sea coast early this year and, according to their plans, the exploration process should last for about five years.

Chevron was forced to remove trucks with drilling equipment from the Pungesti area after protesters clashed with police forces. Under the pressure of the demonstrations, the local authorities decided to ban exploration and called for a referendum, which is scheduled for November 24th. However, protesters have opposed the referendum – since Chevron obtained their licences from a much higher authority, the local referendum was thought unlikely to change anything.

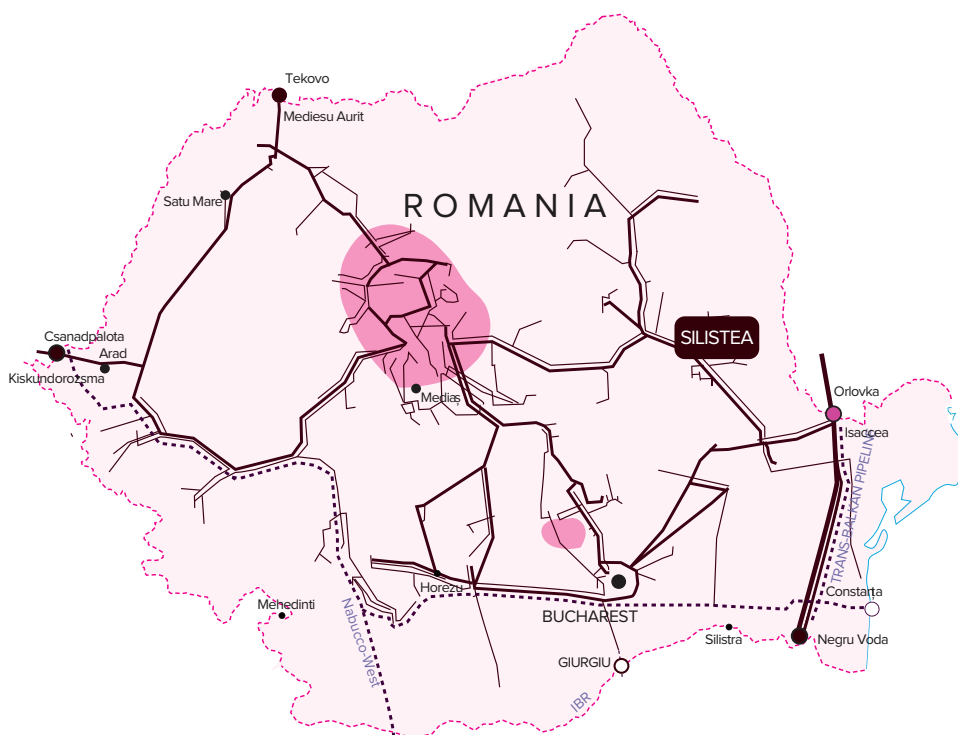
Romanian Prime Minister Victor Ponta supports shale gas exploration. According to Ponta, it is a unique opportunity for Romania to become energy independent – to start its own gas production instead of importing. Deputy Prime Minister, Liviu Dragnea, declared that protesters are probably unaware that in a few years Romania may not have enough gas to keep its economy functional. “If we exploit shale gas, gas prices in Romania will be reduced, industry will be competitive, new jobs will appear and the economy will develop,” Dragnea said. Other Romanian officials also warned that the Vaslui region, which is largely rural and a deprived part of the country, needs this kind of investment, which will bring new jobs for locals. The American Energy Information Administration (EIA) estimates that Romania can exploit up to 1.4 trillion cubic metres of shale gas, which will cover the country’s needs into the next century

and lead to a decrease in prices.

The Pungesti protesters, on the other hand, consider that shale gas exploration will devastate this already poor area, put the health of local people in jeopardy and turn the area into a desert. The exploration technology used to extract shale gas – fracking (hydraulic fracturing) – requires water mixed with sand and chemicals to be pumped under high pressure into the well in order to create a crack in sediment formations, thereby allowing the gas to come to the surface, or the use of localised explosions to break the rock and allow the gas to leak to the surface. Critics claim that these processes devastate the soil and pollute water wells, so compromising the supply of drinking water, and in some cases lead to the triggering of earthquakes. Advocates of fracking state that these technologies are used in a safe manner in the US and are proven to lower gas prices. Although there is much debate on this issue, Bulgaria and France are the only European countries so far to have prohibited shale gas exploration.

The demands of Pungesti protesters were supported by demonstrators in Bucharest – among them NGO representatives, environmentalists and many ordinary citizens. But this has been just one of many protests in Romania this fall. The public has become disillusioned, considering that the latest government measures are corrupt, a surrender of the country’s natural resources to international companies – that government’s decision-making processes on these projects lack transparency.

Another project that has caused unrest – with demonstrations in Bucharest, Cluj and Timisoara, and calls for Ponta’s government to resign – is that of the Subcarpathian Rosia Montana gold mine, the biggest in Europe. The Canadian corporation Gabriel Resources owns 80% of „Rosia Montana Gold Corporation“, and in 1999 acquired licences to open the mine. The mine is estimated to contain 314 tons of gold and 1,500 tons of silver and, according to the project plan,



Silistea site, Pungesti area of the Vaslui region

exploration should last a couple of decades. The exploration process includes the use of cyanide and the razing of four mountains in order to make way for an open pit face.

The precious metals have been exploited at this location since ancient Roman times, but the mine has been closed for more than a decade now. The Romanian government, which has a minority stake in the mine, has introduced a bill to accelerate the opening of the mine and has given it the status of a “project of national interest”. But the bill hasn’t been considered yet or voted on in parliament. Some consider the mine to be the only way to regenerate this area and create new jobs, while others say that the government decision to prescribe it as a “project of national interest” is no more than a ploy to allow the corporation to acquire the land easily and in exchange for

low levels of compensation to locals who oppose the mine opening. Experts warn of the effect on the environment of mountain razing and the use of cyanide.

Parliament is now expected to vote on this matter in mid November. But, if they vote against the bill, Gabriel Resources CEO Jonathan Henry has announced, the company will sue the Romanian government for 4 billion dollars. The company has been waiting for this project to be realised for 14 years, spent 580 million dollar and seen seven CEOs come and go. Recent events in Romania have decreased the company’s value on the Toronto stock exchange – it has fallen disastrously to just 300 million dollars, compared to its Q1 2012 value of 2.5 billion dollars.

D.H.

GR EU to invest 134 million euros in gas infrastructure projects in Greece

The European Commission has allocated 134 million euros for four gas-related projects in Greece. The grants will be allocated from EU structural funds and will be used to improve the gas infrastructure in this EU state.

The funds will be granted to DESFA, which is the national operator of the natural gas network in Greece. This is the only gas transfer operator in Greece and its main goal is to increase the capacity for gas transfer and to improve the security of gas supply.

The money will be invested in three projects: to increase the capacity of the natural liquefied gas terminal on the isle of Revithoussa near Athens, to complete construction of the compression station facilities in Nea Mesimvria near Thessaloniki and to construct gas pipelines to the Peloponnese and the island of Evia near Athens.

As reported by ITAR-TASS, Joaquin Almunia, Vice-president of the European Commission for competition policy, stated that: “Specific aid is going to assist Greece to expand and strengthen its natural gas network. Thus, competition among gas suppliers will improve and consumers will benefit from diversifying energy sources.”

In a note released on DESFA’s website, the CEO Dr Georg Paparsenos emphasized that: “The state aid for four development projects and the expansion of the natural gas network in Greece that was announced by the European Commission is tangible proof of the confidence that surrounds not only DESFA’s development program but also the potential of the Greek economy.” He added that this decision by the European Commission also underlines the significance of the project for the European Union’s energy policy and it sends a clear signal that the recovery attempts for the Greek economy are on the right track.

The note also states that the increase in the storage capacity of the liquefied natural gas (LNG) terminal in Revythoussa will help to better balance the gas demand in the southern part of the country and improve the security of the gas supply. The improvements to the compression station in Nea Mesimvria will increase gas flow from the north to the south, where there is more consumption. The new high-pressure gas pipelines will increase the number of energy sources in areas where there was no access to natural gas previously. The total amount that will be invested in these projects is 414 million euros.

B.K.

Investments in gas infrastructure in Greece



SRB Wind power in Serbia

Serbia has extensive unrealised potential for greater energy efficiency and production from alternative sources. In particular, the potential of renewable energy resources is substantial and exceeds 3.68 million tons of oil equivalent (Mtoe). Development of renewables has, therefore, become one of the pillars of Serbia's new energy strategy, in addition to security of energy supply and market liberalisation over the next decade. The energy strategy, a key umbrella document, has recently been adopted by the Serbian authorities paving the way to sustainable energy by 2030. The new strategy defines investment, especially in the period up to 2020. The plan calls for additional 2,000 MW in the thermal and hydro sectors, specifically in the field of reversible hydropower plants and especially in the renewable energy sector.

Some independent experts think that the share of wind potential is underestimated in the strategy document, which is projected to be 0.103 million tons of oil equivalent (Mtoe), or 1200GWh annually and correlates with the current limit of 500 MW of wind power capacity covered by a special feed-in tariff. However, looking at wind potential studies and the status of ongoing wind projects, the Serbian renewable energy market should be able to count on 900 MW of installed wind capacity by 2020.

Legislation

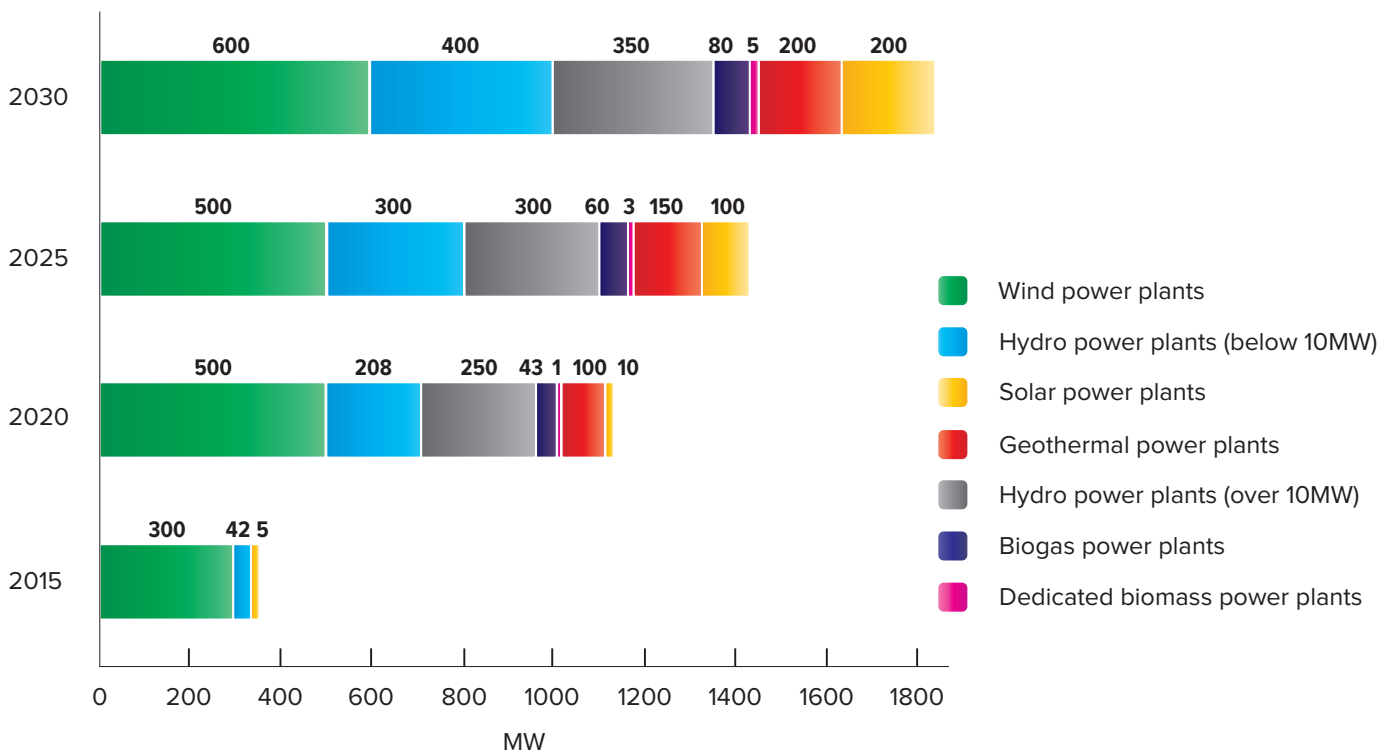
The country guarantees favourable feed-in tariffs for renewables plants for 12 years, and once these have expired

the power generated will be priced in accordance with the electricity market. The Ministry of Energy has adopted four decrees related to renewable energy sources:

- Decree on the procedure and conditions for obtaining the status of privileged power producer
- Decree on the incentive measures for privileged power producers
- Decree on the special incentive fee level for the year 2013
- Decree on the method of calculation and distribution of the incentive fee for privileged power producers.

This set of bylaws, delivered in cooperation with the International Financial Corporation (IFC), has been followed by the new decree on conditions of delivery and supply of electricity, launched in July 2013 along with the official model power purchase agreements (PPA) and preliminary power purchase agreements (preliminary PPA), based on which privileged power producers will be able to utilise incentives for green electricity. Still to come this year is an overhaul of energy law, which will improve the regulatory framework in the renewables sector, implement the EU's third energy package and resolve some inherited issues regarding grid connection approval (GCA), authority over the design and build of connections of energy facilities to transmission and distributive system, etc.

Investment in renewable energy sources with particular focus on wind parks could be higher than the added value



New capacities schedules for electricity generation out of renewables, Source: Serbian Ministry of Energy website

to Serbia's economy of the construction of new coal power plants. This significantly redefines the story about renewable energy supply (RES), which is now about a significant source of economic revenue and no longer simply a tale of ecology and environmental protection.

Wind projects in Serbia

There are around 15 projects under development and most of them, accounting for about 80 per cent of capacity, are located in South Banat Region – Vojvodina province. The most comprehensive projects, developed in accordance with rigid international lender performance standards and best EU wind development practice, were developed by member companies of SEWEA (Serbian Wind Energy Association).

Project finance and due diligence

Most of the projects, if not all, have in common unresolved financing. Therefore, the focus in 2014 will be on financial close of the projects followed by vast due diligence activities depending of type of financing options available for renewable energy projects in Serbia (direct private investments, project finance, or 'on-balance sheet' financing). Preparing a wind project for financing means passing a number of critical due diligence tests (commercial, technical and legal). This is especially so if the sourcing of the capital is to come from a financial institution such as EBRD, IFC, various merchant banks or a specialised equity of hedge funds. These will usually expect to conduct their own due diligence (in some cases outsourcing it to an independent third party) before approving

finance, which additionally increases the cost of the project in the eyes of lenders, and exerts greater commercial pressure on matters such as additional securities to be issued by state or power producer. The need for the project to be clean of step-in rights by the current financier of the seller's side is also emphasised.

List of most advanced wind projects in Serbia:

Project	Construction Permit WPP
WPP Pladniste [102 MW]	<input checked="" type="checkbox"/>
WPP Cibuk [142,5 MW]	<input checked="" type="checkbox"/>
WPP Alibunar [42 MW]	<input checked="" type="checkbox"/>
WPP Malibunar [8 MW]	<input checked="" type="checkbox"/>
WPP Blacksmith [120 MW]	<input type="checkbox"/>
WPP Kosava [127,5 MW]	<input checked="" type="checkbox"/>
WPP Picolina [9 MW]	<input checked="" type="checkbox"/>
WPP Kula [6 MW]	<input checked="" type="checkbox"/>
WPP Alibunar 1 [170MW]	<input type="checkbox"/>
WPP Popadija [60 MW]	<input type="checkbox"/>
WPP Kladovo [50 MW]	<input checked="" type="checkbox"/>

Confirmed - Done Still processed

A.K.

CRO Production starts at the 1MW solar plant in Croatia

The biggest Croatian solar power plant entered production in mid October. The plant is located in Trnovac Bartolovecki, near Varazdin. The facility has 999 kW power and is expected to produce 1.113 MWh/y of ecologically pure electricity. The projected annual production is in the region of 1.125KWh per kWh of installed solar power.

This is the third solar plant that Gumiimpex-GRP, a company headquartered in Varazdin, has opened. The first two plants, with power of 221 kW, were commissioned in September. The new plant is installed on the roof of the Gumiimpex production facility. The company emphasises the positive influence of the plant on the environment claiming that over the next 30 years the plant will emit 10,260 tons of CO₂ less than plants that use fossil fuels to obtain the same amount of energy.

Gumiimpex's primary activity is the production, placement and maintenance of tyres but they entered the energy production market and obtained a licence as privileged power producer. The power produced will be, according to agreement with HROTE, fed into distribution network under a specified feed-in tariff.

Solektra, an authorised solar plant installer from Cakovac, obtained the necessary planning consents and built this plant. This company also invests in and builds its own solar power plants, and in October it opened its third plant of 299 kW in Krizopotje.

D.H.

RO Romania about to achieve target of 24% energy production from renewable sources

Romania's investment in renewable energy is no less than 4.4 billion euros, according to the national energy regulatory agency ANRE. Representatives from ANRE stated that Romania has presented to the European Commission its

target of 24% energy production from renewable sources. Given its significant investment in renewable energy projects and low consumption, Romania is about to achieve that goal. According to data presented by ANRE, approximately 3,150

MW will be produced from sources on the “green course”, which are supported by government legislation. An estimated 2,000 MW will be produced by wind parks and about 650 MW will be provided by photovoltaic projects. These figures are for projects that have obtained the necessary licences, while an additional 33 MW may come from projects still waiting for permits.

Mr Traian Toma from Energie Design Centrum (EnDC), the German energy consulting company, confirmed to Market Player that the target of 24% production from renewable sources will be achieved in early 2014. This company is already involved in these projects, mainly as a consultant to

investors interested in solar energy, which is one of EnDC’s primary activities. The expected return on investment from solar plants is 15-21%, Mr Toma explained, therefore investing in renewable energy is not just environmentally friendly but also profitable.

This act sets Romania on target for the 20-20-20 EU strategy. This strategy’s main aims are decreasing CO₂ emissions by 20%, producing 20% of energy from renewable sources and increasing energy efficiency by 20% by 2020.

D.H.

06 ENERGY EFFICIENCY

SRB EBRD provides 75 million euros for energy efficiency projects in the Western Balkans

The European Bank for Reconstruction and Development has launched a project to improve energy efficiency in the Western Balkans. The new programme, WeBSEFF II, will provide end-user credit lines totalling 75 million euros with the aim of maximizing energy-saving potential, opening new markets and providing an efficient and successful allocation of resources.

According to the EBRD announcement the new programme for energy efficiency improvement combines two vital, but elusive, components: long-term funding and technical expertise. The project aims to enable reduced energy consumption by investing in relevant equipment, systems and processes. Small independent projects for renewable energy, such as investment in renewable energy technologies, as well as building-sector energy efficiency also fall within the project’s remit.

Banks in Albania, Bosnia and Herzegovina, Croatia, Macedonia, Kosovo, Montenegro and Serbia have provided lines of credit to fund the programme. These resources will be available to enable private and local users to invest in energy efficiency and renewable energy sources. The first stage of the project was launched in Macedonia, Serbia, Croatia and Bosnia and Herzegovina. The terms available to borrowers for investment incentives amount to 5 to 10 per cent of approved funds for the private sector and 10 to 15 per cent of approved funds for the municipal sector, with professional assistance in the implementation of the programme.

EBRD Director for Serbia, Mateo Patrone, stated that the “new financial framework represents a major step forward in our efforts to support the cost-effective use of energy in the Western Balkans, where there are still significant gaps.”

“Following previous projects in this area, we put a special emphasis on renewable energy sources and energy efficiency. In this regard, we are paying particular attention to the municipal sector, where there is still large unused potential for cost savings”, Mr Patrone added.

WeBSEFF II is part of a regional energy efficiency programme for Western Balkan countries, which is also part of a joint initiative for the Investment Framework of the Western Balkans and EBRD. An 11.5 million euro EU grant has been made available to the programme. These funds will be used for technical cooperation programmes and investment incentives for borrowers in the form of free consultations and advice, as well as free energy consumption audits. According to the statement, the programme is a continuation of the WeBSEFF I project that EBRD launched in 2009 together with eight banks from the region. Within this project, which also benefits from EU grants, 123 energy efficiency and renewable energy sources have been approved to date, with loans totalling 60 million euros.

The statement points out that in Serbia alone, 31 energy efficiency projects for renewable energy sources have been approved to date, with loans totalling 31 million euros.

B.K.

07 ADS

All you need to know about accessing the Serbian electricity market in one package



Belgrade-based Stratega East d.o.o in cooperation with VUK Tax Attorneys have prepared a substantial package of legal and technical support and guidance, as well as interpretation of related legal and technical documents. All of this is available from one source:

- Laws and regulations relevant to trade, supply and purchase of electricity on the Serbian market;
- Prepared interpretation of and responses to previously analysed questions about operation of the electricity market (conclusion of contracts, planning purchasing, determination of prices etc.);
- Pre-prepared all necessary basic information about starting and conducting business in relation to electricity trading and supplying for legal entities;
- A printed copy of the Handbook on Electricity Trading available in English or Serbian;
- three (3) hours of additional counselling by phone or e-mail from VUK Tax Attorneys;
- three (3) hours of additional counselling by phone or e-mail from Stratega East d.o.o. Belgrade.

By purchasing the above package, customers will receive a discount of 20% on annual subscription to the specialized magazine in the energy sector "Market Player".

Contact US:
office@strategaeast.com
contact@vuk-ta.com



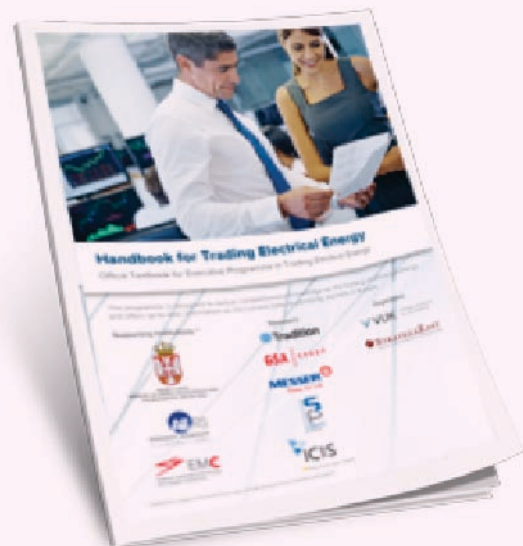
Wind Power Handbook

General handbook for wind power developers and producers in Republic of Serbia



Handbook for Trading Electrical Energy

Official Textbook for Executive Programme in Trading Electrical Energy



Contact us at :
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Retail focused energy portal www.kupistruju.rs is dedicated to suppliers and buyers of electricity in Republic of Serbia, providing them with comprehensive market information.

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08

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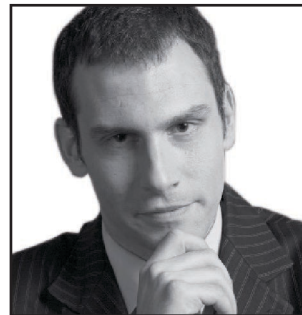
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