

# **Interplay Between Natural Gas, Lignite and Renewables**

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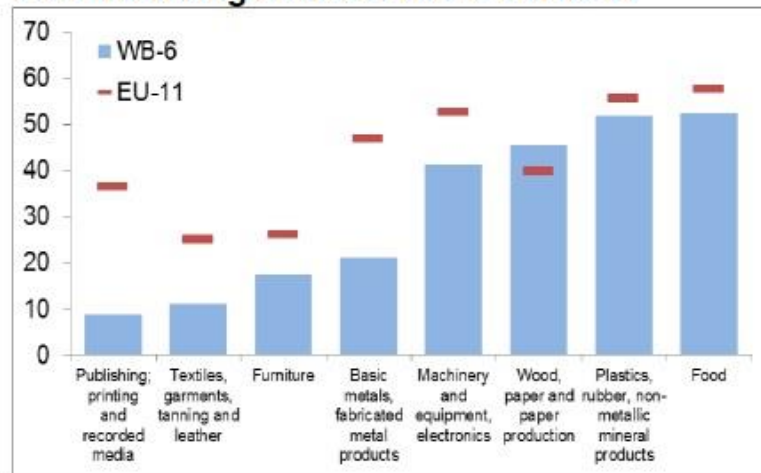
*Tuzla, May 24, 2017*

# Open questions

1. Sustainability of industrial energy demand?
2. Sustainability of residential energy demand?
3. Sustainability of thermal power generation portfolio?
4. Sustainability of district heating services?
5. In absence of the long term PPA and/or sovereign guarantees, what is justification for large scale investments?
6. Depreciated assets sufficient to guarantee security of supply? In longer term?
7. Buy (import) or produce (export?)?
8. Sustainability of the price control as the barrier to entry?
9. Political risk as a barrier to entry?
10. Property rights, access to infrastructure, terminal cost and access to energy resources as barrier to entry?

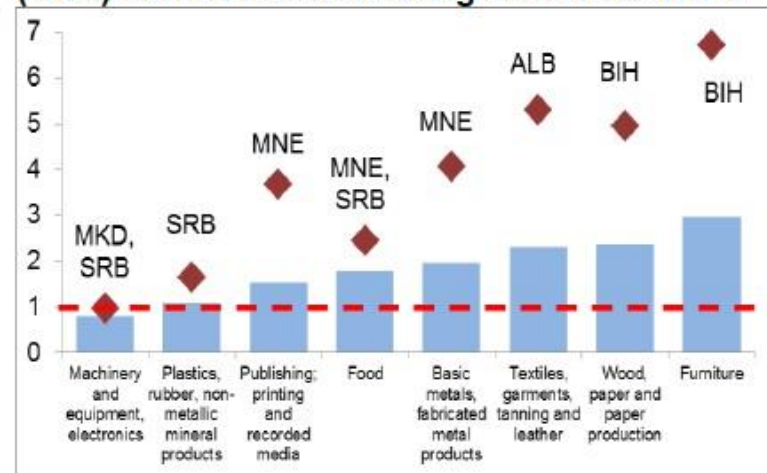
# Industry competitiveness in Western Balkans

**Chart 3. Labour productivities across manufacturing sectors: WB-6 vs EU-11**



Source: EBRD BEEPS V, 2013.

**Chart 4: Revealed comparative advantages (RCA) across manufacturing sectors in WB-6**



Source: UNCTAD Trade matrix by products, 2016.

Note: Kosovo is not included. Countries that have the highest RCA in a certain industry group are marked.

Source: Ana Krešić, Jakov Milatović and Peter Sanfey: “Firm performance and obstacles to doing business in the Western Balkans | Evidence from the BEEPS”, EBRD 2017

# Obstacles to doing business

Table 5: Obstacles to doing business, by revealed cost

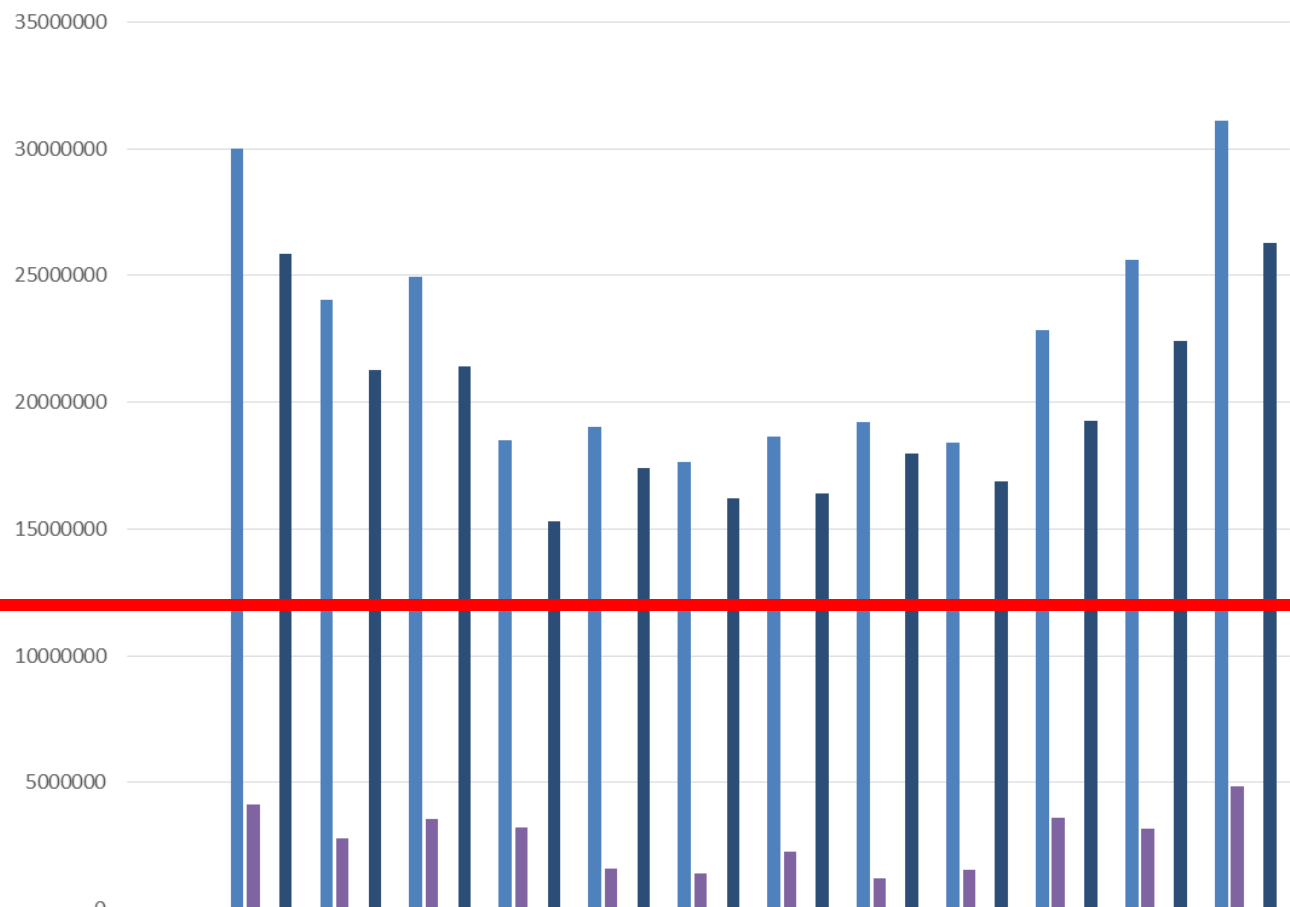
	ALB	BIH	MKD	KOS	MNE	SRB	Average
Tax rates	3.47	3.65	3.36	4.02	3.39	3.84	3.62
Competition from the informal sector	3.28	3.09	3.73	4.50	3.22	2.93	3.46
Electricity	3.32	2.57	3.34	4.01	2.73	2.50	3.08
Tax administration	2.61	2.51	2.19	3.07	2.18	2.84	2.57
Access to finance	1.47	1.79	1.97	2.89	1.58	1.84	1.92
Corruption	1.82	1.94	1.41	2.89	0.84	1.81	1.78
Access to land	2.07	1.57	1.85	2.10	1.54	1.52	1.78
Labour regulations	1.36	1.67	1.57	1.64	1.40	1.82	1.58
Crime, theft, disorder	0.85	1.07	1.13	2.48	0.79	1.08	1.23
Transport	0.89	1.12	1.26	1.88	0.90	1.03	1.18
Political instability	0.82	1.58	1.04	1.83	0.03	1.69	1.17
Customs and trade regulations	0.56	1.08	0.83	1.68	0.82	0.90	0.98
Business licensing	0.69	1.14	0.78	0.90	0.59	0.76	0.81
Inadequately educated workforce	0.57	0.52	0.89	1.31	0.27	0.79	0.73
Courts	0.39	0.67	0.62	0.82	0.24	0.86	0.60
Telecommunications	0.15	0.12	0.64	0.75	0.01	0.09	0.29

Source: BEEPS V.

Note: Even though the dependent variable takes value between 0 and 4, conditional mean is slightly higher than 4 in some cases because the regression is not bounded.

Source: Ana Krešić, Jakov Milatović and Peter Sanfey: “Firm performance and obstacles to doing business in the Western Balkans | Evidence from the BEEPS”, EBRD 2017

## Rekapitulacija el. energije 2016



	Januar	Februar	Mart	April	Maj	Juni	Juli	August	Septembar	Oktobar	Novembar	Decembar
■ Nabavljena EE (KWh)	29,990,	24,061,	24,971,	18,520,	19,031,	17,629,	18,653,	19,218,	18,426,	22,855,	25,621,	31,100,
■ Gubici (KWh)	4,146,2	2,789,65	3,544,3	3,234,9	1,619,7	1,432,2	2,269,1	1,221,4	1,563,2	3,598,5	3,184,5	4,833,7
■ Gubici (%)	13.83%	11.59%	14.19%	17.47%	8.51%	8.12%	12.17%	6.36%	8.48%	15.74%	12.43%	15.54%
■ Realizacija (KWh)	25,843,8	21,271,7	21,426,7	15,285,6	17,411,2	16,196,8	16,384,0	17,997,5	16,863,1	19,257,2	22,437,3	26,266,8

Impact of efficient space and water heating to electricity demand.

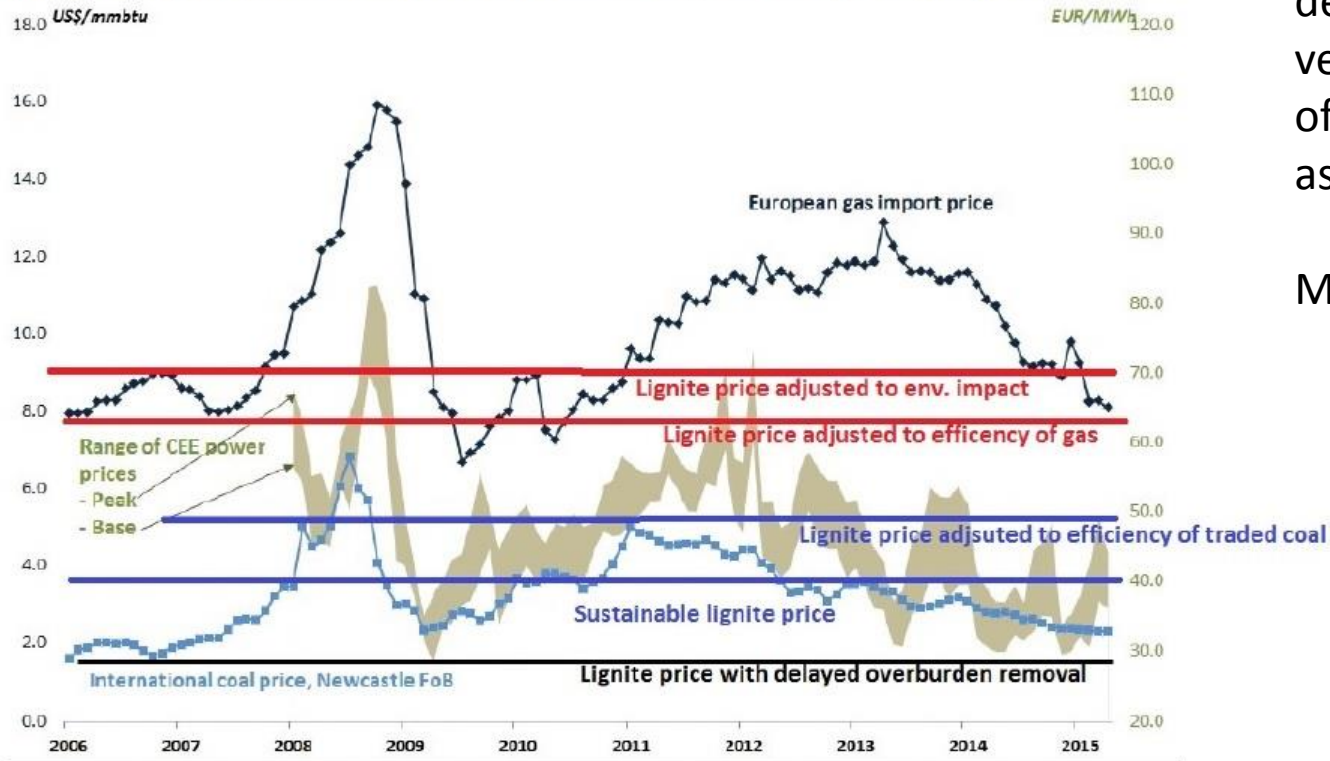
Impact of demand profile to network losses.

Power generation capacity requirement?

Source: Brcko District, 2017

# Lignite – hard coal - natural

Figure 13: Lignite prices compared to traded coal, electricity and gas prices



Source: ECA analysis with data from World Bank, IEA and Central European Power Exchange

Source: [https://www.energy-community.org/portal/page/portal/ENC\\_HOME/DOCS/3758164/192E17AC7BED4BDEE053C92FA8C0D198.PDF](https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/3758164/192E17AC7BED4BDEE053C92FA8C0D198.PDF), page 58. Lignite price estimates are provisionally estimated by Author

Utilization rate of depreciated assets versus utilization rate of low investment cost asset?

Maintain or replace?



# Use, maintain or shift to renewable?



# Lignite – Gas – Electricity – Fuel wood

- Fuel wood emerges as the most competitive fuel for space heating
- Poor quality heating services and poor comfort create weather related spikes in electricity demand
- Fuel wood demand affects the most competitive industry in the region
- Competitive industries are not energy intensive
- Decrease in international energy prices affect exports of energy intensive while inefficient industry
- Utilization rate of existing gas, district heating and petroleum infrastructure?



# Balkan Flood Extent 2014



## Legend

- |                  |                |                   |
|------------------|----------------|-------------------|
| ○ Cities/Towns   | — Waterways    | ▭ State borders   |
| ● Capital cities | — Major rivers | ▭ Country borders |
| ■ Power plant    | ■ Flood extent |                   |

Source: "Balkan Floods of May 2014: challenges facing flood resilience in a former war zone", Zurich Flood Resilience Alliance and Post Event Review Capability (PERC), Flood resilience review 05.15

The flood extent was produced by our Zurich flood resilience alliance member IIASA. Data was derived from the Esri Disaster Response Program and is the approximate flood zone generated from available reports (esri.com). The basemap was provided by openstreetmap.org and fao.org.

# Western Balkans 6: Nexus of risks

<p>Underutilization of gas and oil pipeline infrastructure No access to international LNG market Competitiveness of oil refining?</p>	<p>Devastation of forest cover Change in hydro regime Erosion &amp; landslides Floods</p>	<p>Phase out of lignite power plants: loss of 60% power generation capacity District heating deterioration</p>
<p>Poor transport integration to Adriatic Ionian region Port – Railway bottleneck Lack of economy of scale Limited railway capacity</p>	<p><b>POVERTY &amp; INSTABILITY</b> False perceptions Inadequate public statistics Human insecurity Stalled EU integration</p>	<p>Poor transport integration via Danube to Central Europe and Black Sea &amp; Central Asia Belgrade Intermodal bottleneck</p>
<p>Exposure to gas &amp; oil supply risks Fertilizers supply Devastation of agriculture assets</p>	<p>Hidden fiscal deficits Unsustainable nominal GDP Deterioration of public finances</p>	<p>Electricity &amp; heat supply risk Loss of industrial competitiveness</p>

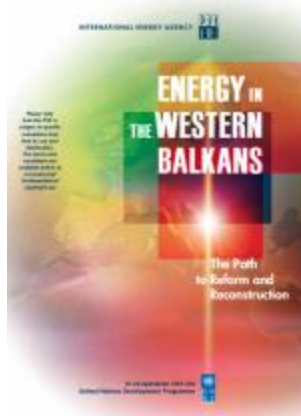
# Berlin Process as response to crisis?

- Remarkable neglect of the “White Elephant” theory
- Minimal attention to landlockedness and utilization of existing infrastructure
- Financing infrastructure by foreign currency as short term GDP make up
- EU accession process to maintain creditworthiness
- Further investment prioritization
- Uncertainty and displacement of private investments
- Puzzled relations with Chinese and Russian investment initiatives

# Berlin Process: Going Forward...

- Sustainability Charter
  - Improve the governance for energy efficiency.
  - Implement smart support measures improving sustainability of energy systems.
  - Foster climate action and transparency of sustainable energy markets.
- Connectivity Agenda
  - Transport infrastructure investments
  - Energy cross border connections
- Enforcement of the Energy Community Treaty?
- Inclusion of non-Government stakeholders?
- Alignment with the UNFCCC Paris Agreement
- Streamlining of EU environmental legislation.

# Further reading



<http://www.iea.org/publications/frepublications/publication/Balkans2008.pdf>



<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/02/Towards-a-Balkan-gas-hub-NG-115.pdf>