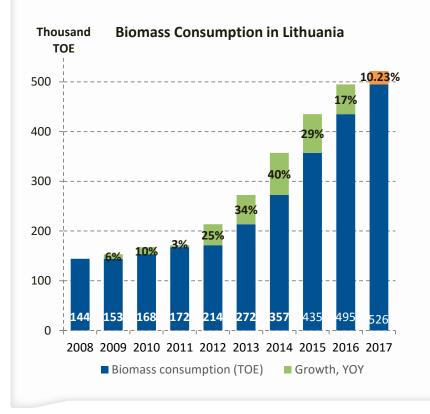


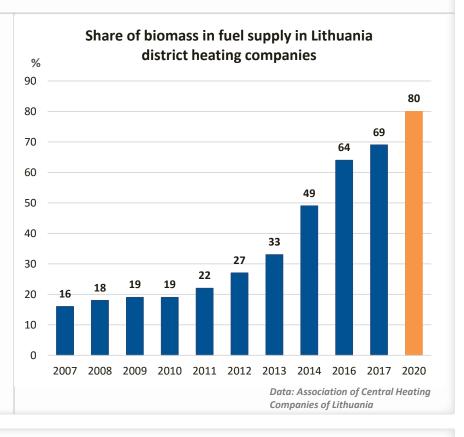
Biomass auctions as a basis for an effective bioenergy market. European experience

Andrius Smaliukas CEO 16th October 2019, Kiev



NATURAL GAS CONVERSION TO BIOMASS IN CHP SECTOR





Biomass become a strategic energy resource in Lithuanian energy sector



WHAT IS BIOMASS EXCHANGE?

Biomass Exchange is a virtual platform where buyers and sellers meet to trade in biomass products

BIOMASS =							
	Trading	1					
	0	luct very period les sort by: rict e	Products: SM1 (Wood chips) SM1W (Wood chips) SM2 (Wood chips) SM3 (Wood chips)	 ✓ MG1 (Wood pe ✓ MG2 (Wood pe ✓ MG3 (Wood pe ✓ KD (Peat) 	llets)	Delivery We Mo Qu U Hal	ekly nthly arterly If-year
K Trading							
ew Order Orders Collateral	Standard	I Trade 022/181028/1 Buy Orders ↓	Sell Orders →				
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insactions management		Kaunas county 20.64€1047 Šiauliai ✓			³⁴⁹ 0 20.64 € ³⁴⁹ 0	20.72€ ³⁴⁹ 0	21.15€ ³⁴
nsactions Fuel Quality Delivery Reports Schedules	_	Vilnius county 18.06€ 70	18.06€ 70 21.50€ 70 34.65€	•	349 40 026 698	47 006 698	
List of Data Nvoices Data	SM2 01:06	Riga region 16.08€ 1047 837 Riga region 15.56€ 0 Riga Riga 15.56€ 0	18.57€ ¹⁴⁰		³⁴⁹ 0 18.83€ 000	47.89€ 0	
Asybills		region 15.56€ 0 Riga region 15.56€ 70 Vilnius county 15.48€ 349	18.57€ ⁷⁰ 19.43€ ⁷⁰ 48.75€	70 0			
tings		Vilnius county 15.05€ 698	30.52€ ⁶⁹⁸ 0				
	-	Harju county 13.76€ ¹⁰⁴⁷ 0					
count Trading Company		Alytus county 19.43€ 349 Alytus 40.405 349					
	_	Alytus county 19.43€ 349 349 Vilnius county 14.62€ 698 0		³⁴⁹ 0 19.52€ ³⁴⁹ 0 20.55€	³⁴⁹ 0 24.85 € ³⁴⁹ 0	37.58€ ⁶⁹⁸ 0	
ministration	SM3	Kaunas 7 44 006 558		698			
Active Execute Auction Periods	01:53	Utena county 14.19€ 349 0	37.40€ ⁶⁹⁸ 0	0			
	-	Harju county 13.76€ ¹⁰⁴⁷ Tauragė county 12.90€ ⁶⁹⁸					



DIFFERENT PRODUCTS FOR DIFFERENT NEEDS

Product	SM1	SM1W	SM2	SM3
Moisture content, %	20% - 45%	35 % - 55%	35% - 55%	35% - 60%
Ash content, %	up to 2%	up to 2%	up to 3%	up to 5%
Main fraction, mm	3.15 ≤ P ≤ 63 (min 80%)	3.15 ≤ P ≤ 63 (min 80%)	3.15 ≤ P ≤ 63 (min 70%)	3.15 ≤ P ≤ 63 (min 60%)
Small particles (<3.15 mm), %	Up to 2%	Up to 5%	Up to 10%	Up to 25%
Raw material	Stemwood	+ Residues from wood processing industry	+ Whole trees	+ Logging residues



DIFFERENT CONTRACT DURATIONS

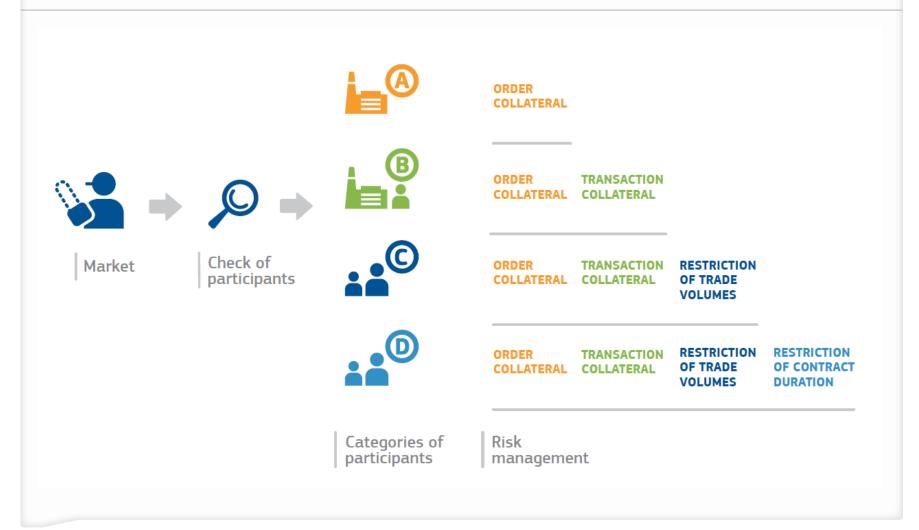


Week Month Quarter Half year

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RISK MANAGEMENT PRINCIPLES









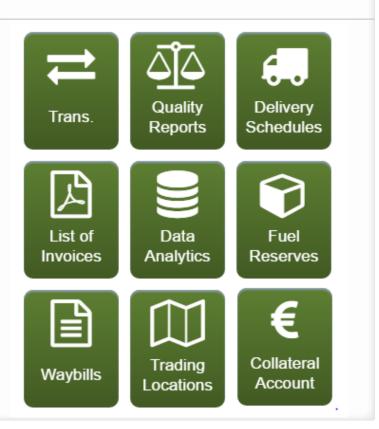
BENEFITS FOR THE MARKET OF USING BIOMASS EXCHANGE





WE TAKE CARE OF DELIVERY PROCESSES TOO

- Delivery Schedules
- Quality reports
- Automatic invoicing
- Data analytics tool



We keep analyzing the needs of the Exchange participants in order to satisfy them in the best possible way



INTERNATIONAL DEVELOPMENT AND FUTURE PLANS



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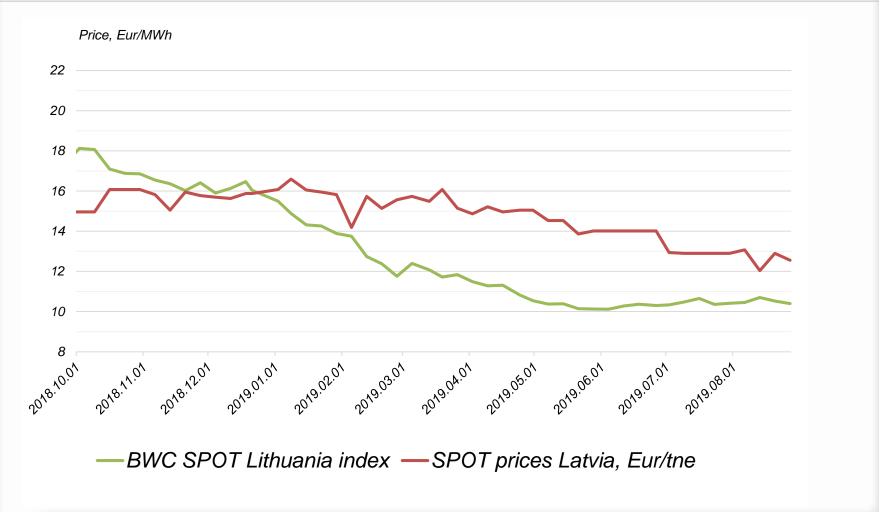


STATISTICS OF CURRENT MARKETS

Lithuania	Latvia & Estonia	Denmark
Number of participants:	Number of participants:	Number of participants:
302	71	42
Contract value 2019:	Contract value 2019:	Contract value 2019:
56 million Eur	1,5 million Eur	1 million Eur
Spot price 2019-Oct:	Spot price 2019-Oct:	Spot price 2019-Oct:
11,27 Eur/MWh	12,73 Eur/MWh	22,31 Eur/MWh
2019 heating season price:	2019 heating season price:	2019 heating season price:
13,25 Eur/MWh	15,90 Eur/MWh	21,5 Eur/MWh



PRICE DIFFERENCE AND EASY ENTRANCE TO THE MARKET CREATES OPPORTUNITIES FOR MARKET PARTICIPANTS





FUTURE BIOMASS MARKET

- Strict requirements for sustainability
- Significant part of biomass trade will be acquired by cross border trades
- Transparency of prices event the biggest players join the biomass exchange



Biomass – commodity traded in regulated market

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ABOUT US

SUPERVISION

 Licensed and supervised by National Energy Regulation Counsil of Lithuania

SHAREHOLDERS

- EPSO-G (67%)
- Klaipėdos Nafta (33%)

BRIEF HISTORY

- 2010-2012 power Exchange operator in Lithuania
- 2013 June launched in-house developed biomass trading system
- 2017 starts biomass exchange operations in Latvia
- 2018 Timber Exchange operator in Lithuania
- 2018 February Danish Biomass Exchange launched
- 2018 May Heat auctions system lauched in Lithuania
- 2019 starts biomass exchange operations in Estonia





https://youtu.be/kNEDIf2wUoU

Should you have any questions – please feel free to contact us!

Andrius Smaliukas

- Managing Director
- +370 5 239 3157
- andrius.smaliukas@baltpool.eu
- www.baltpool.eu

Svetlana Kavina

- Head of Business Development
- +370 662 22500
- svetlana.kavina@baltpool.eu
- www.baltpool.eu