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WASTE TO ENERGY AND BIO CHP IN VILNIUS

Arūnas Žilys
JSC Vilniaus kogeneracinė jėgainė
Chief financial officer
2017-11-07

Vilniaus kogeneracinė jėgainė(VKJ)

Ministry of Finance

↓ 100%

Lietuvos energija

↓ 100%

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Biomass high-efficiency CHP unit **(Bio CHP)**

Waste-to-energy high-efficiency CHP unit (WtE CHP)

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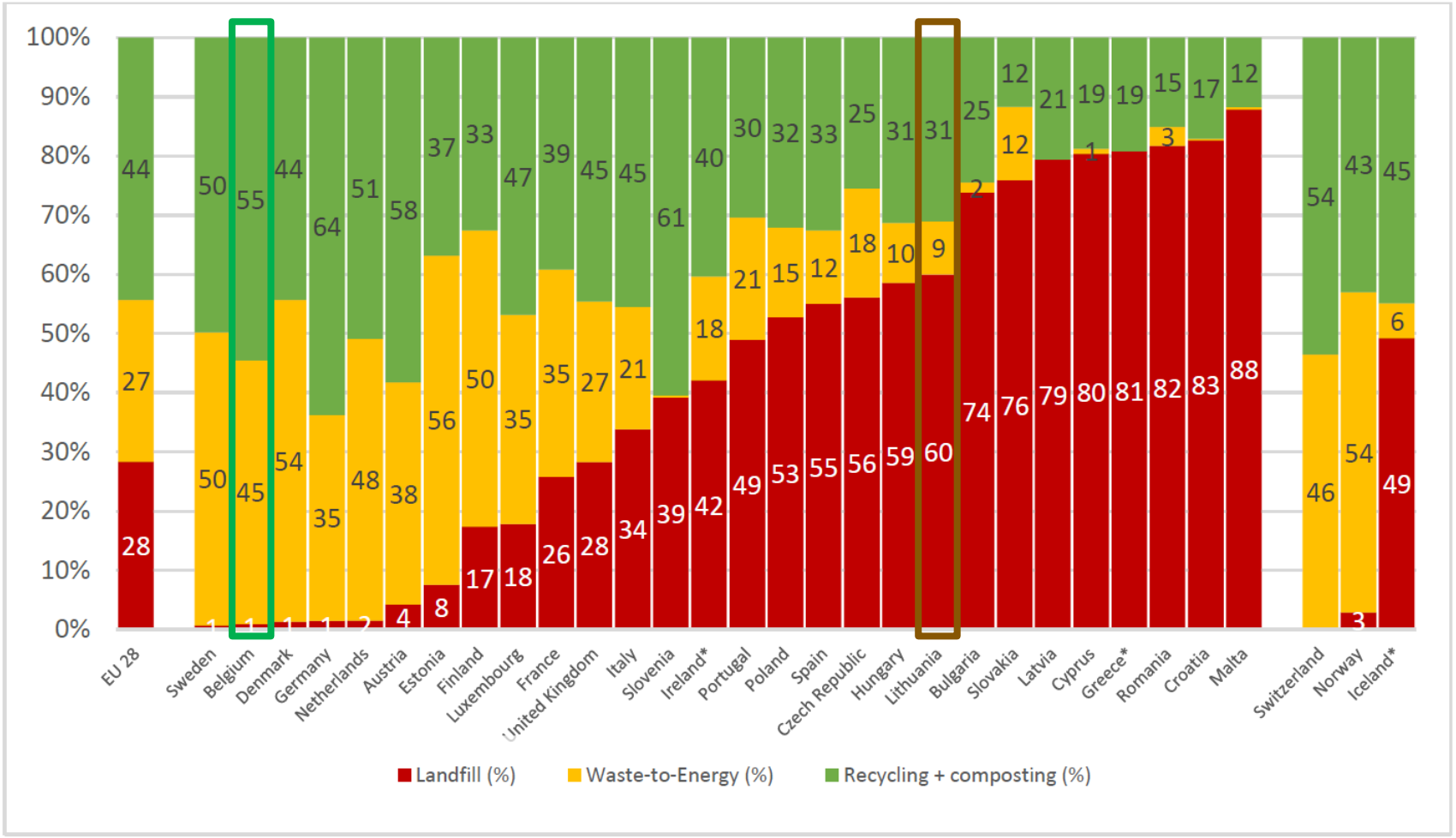
Waste management systems comparison

Municipal Waste treatment in Europe (data from Eurostat 2014)



Ineffective waste management - 60% of waste containing energy value is still landfilled;

Lack of WtE capacities to incinerate RDF/SRF locally produced by MBTs (mechanical biological treatment plants).

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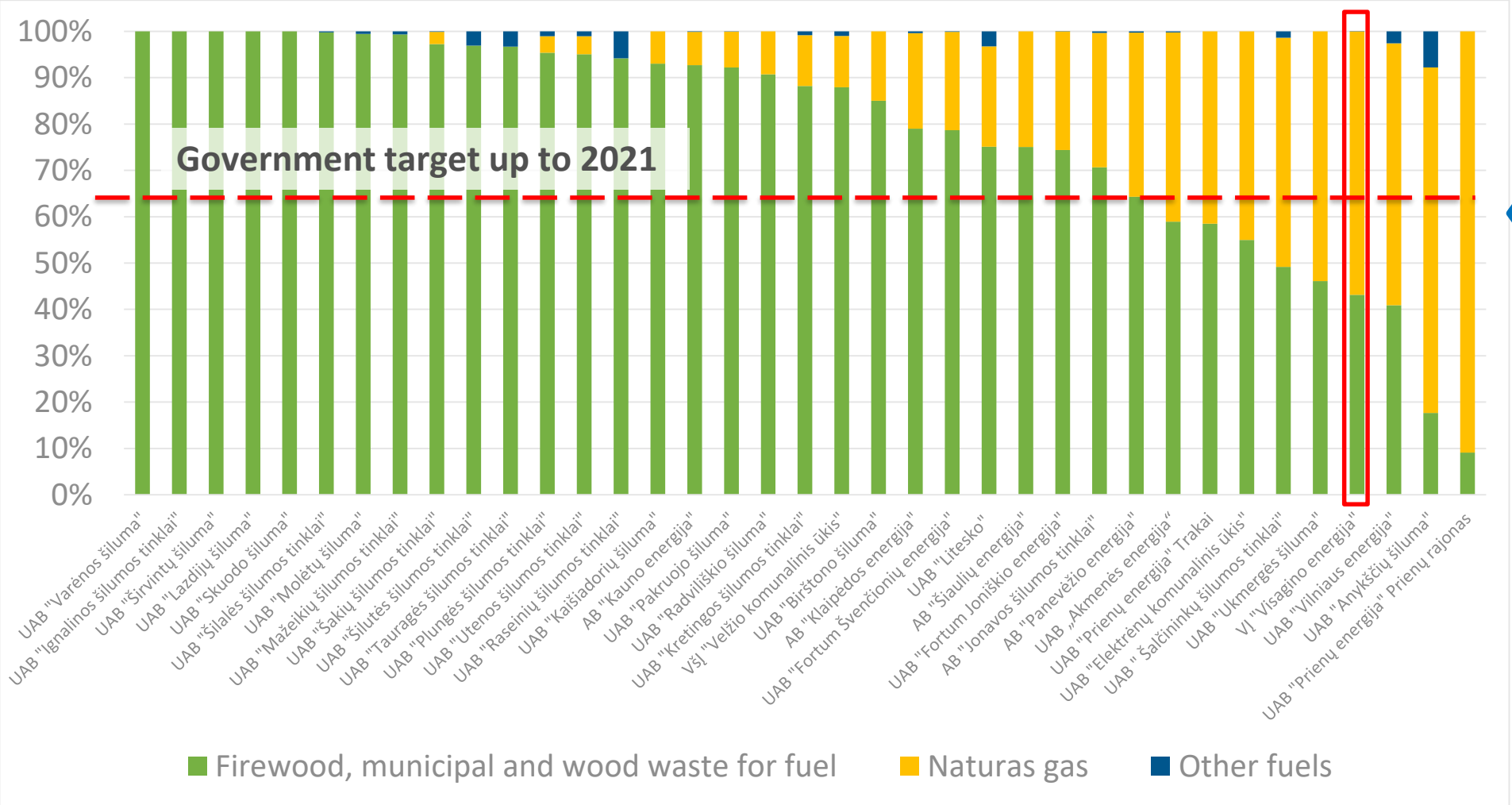
Eurostat (2014)

ENERGY OUTLOOK (district heating)



Total district heat sector heat production ~8,3 TWh;

Vilnius city ~2,6 TWh (~30% of all sector)

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Waste-to-energy high-efficiency CHP unit

- Capacity : 19 $MW_{el.}$/ 60$MW_{th.}$
- up to 160 kt only minicipal RDF consumption
- CAPEX ~140 mln. EUR

Contractors

Steinmüller Babcock Environment — Germany

budimex — Poland

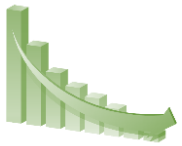
KIDS — Lithuania

Biomass high-efficiency CHP unit

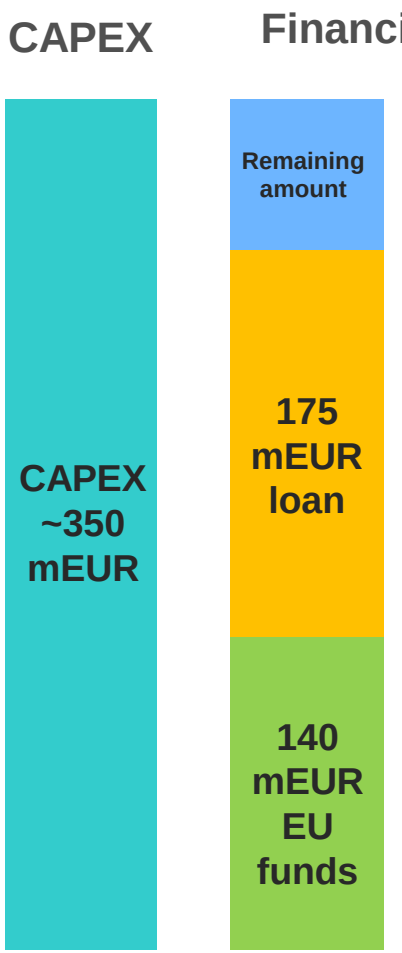
- Capacity : 73 $MW_{el.}$/ 169$MW_{th.}$
- ~400 kt biomass consumptions
- CAPEX ~210 mln. EUR

Contractor

RAFAKO GRUPA PBG — Poland

Benefits	Results
 Decreased district heating price	• Produced heat energy price in 2020 will be ~22-23 EUR/MWh (25% lower than in 2016); • Savings for DH users will reach ~13 m EUR
Reduced landfilling	• In order to reach targets of Circular economy strategy only 5% of waste could be landfilled (2015 m. Lithuania landfilled 54% of waste); • Incineration gate fee – 32 EUR/t, whist landfilling fee – 99 EUR/t • Savings for Vilnius region inhabitants 10 m EUR
Reduced GHG emissions	• Operation of the power plants will result in approx. 436,000 t of GHG emission decrease
Increased share of RES in the energy balance	• Local electricity production from RES increased by 20%
Increasing energy independence	• Significantly decrease in demand of expensive fossil fuel (gas) in Vilnius DH system
Primary energy savings	• Primary energy savings will reach more than 40% in comparison to conventional system plants

Financing structure



Financing source

Equity

- Approved business plan
- Share capital formed by Lietuvos energija, UAB

LOAN

- EIB loan – max 190mEUR
- EFSI
- Lietuvos energija, UAB (parent company) guarantee

EU funds

- Approved state aid
- Signed EU funding agreements (49 m EUR for WtE CHP, 91 m EUR for biomass CHP)

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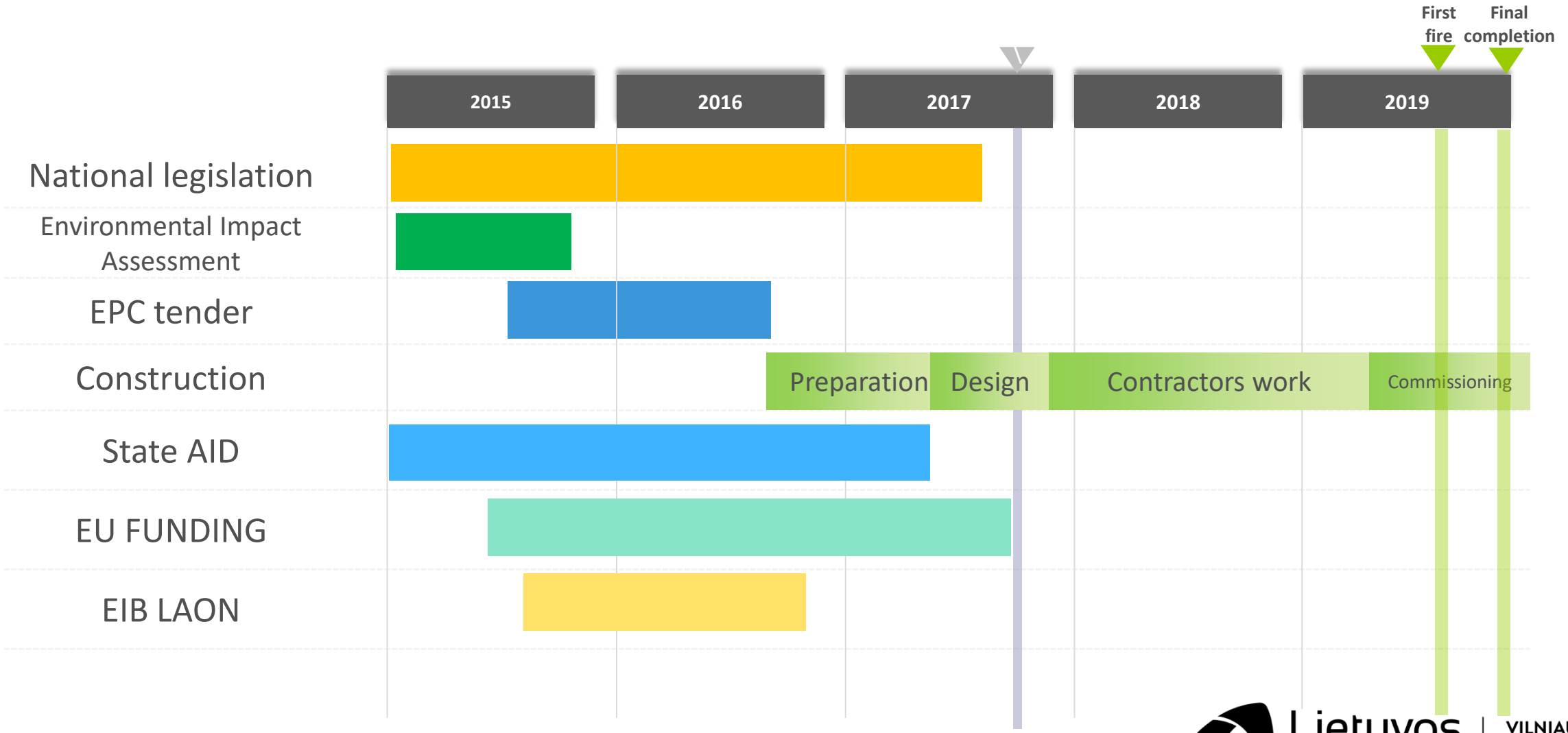
VILNIUS CHP PROJECT TIMELINE



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THANK YOU

or

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