LIETUVOS ATSINAUJINANČIŲ IŠTEKLIŲ ENERGETIKOS KONFEDERACIJA

Renewable energy in Lithuania

Opportunities and obstacles

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- **LITHUANIA – potential for further renewable energy development**
- **LITHUANIA – existing obstacles**
- **LITHUANIA – what could be the next steps?**

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LITHUANIA
information about the country

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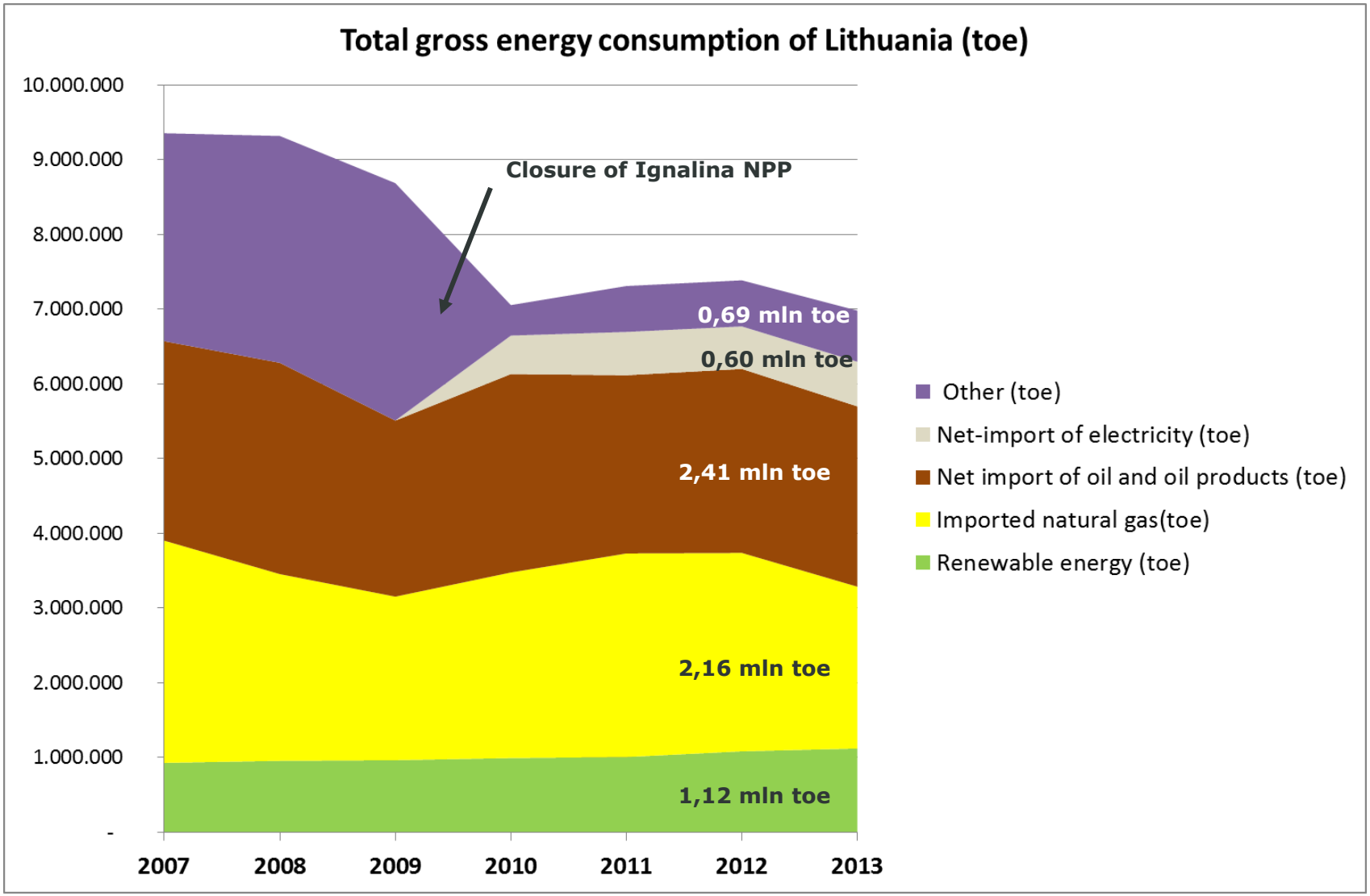
- Area: 65,300 km^2
- Population: 2,94 million

(like 2/3 of Kentucky state)

GDP per capita $26,700 (Kentucky – $33,400)

Gross energy consumption per capita 94 mln Btu (Kentucky - 427 mln Btu)

LITHUANIA
information about the country



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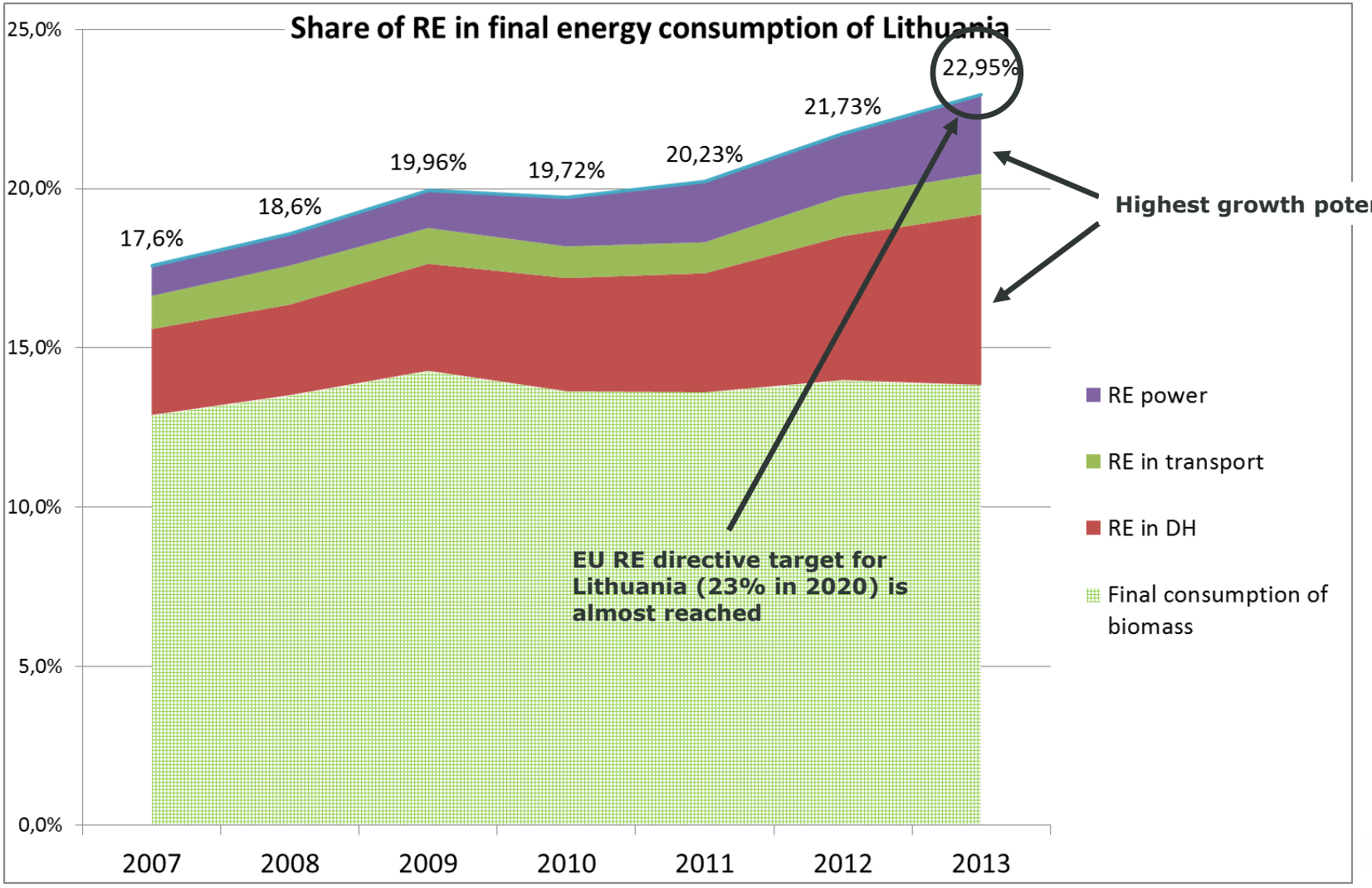

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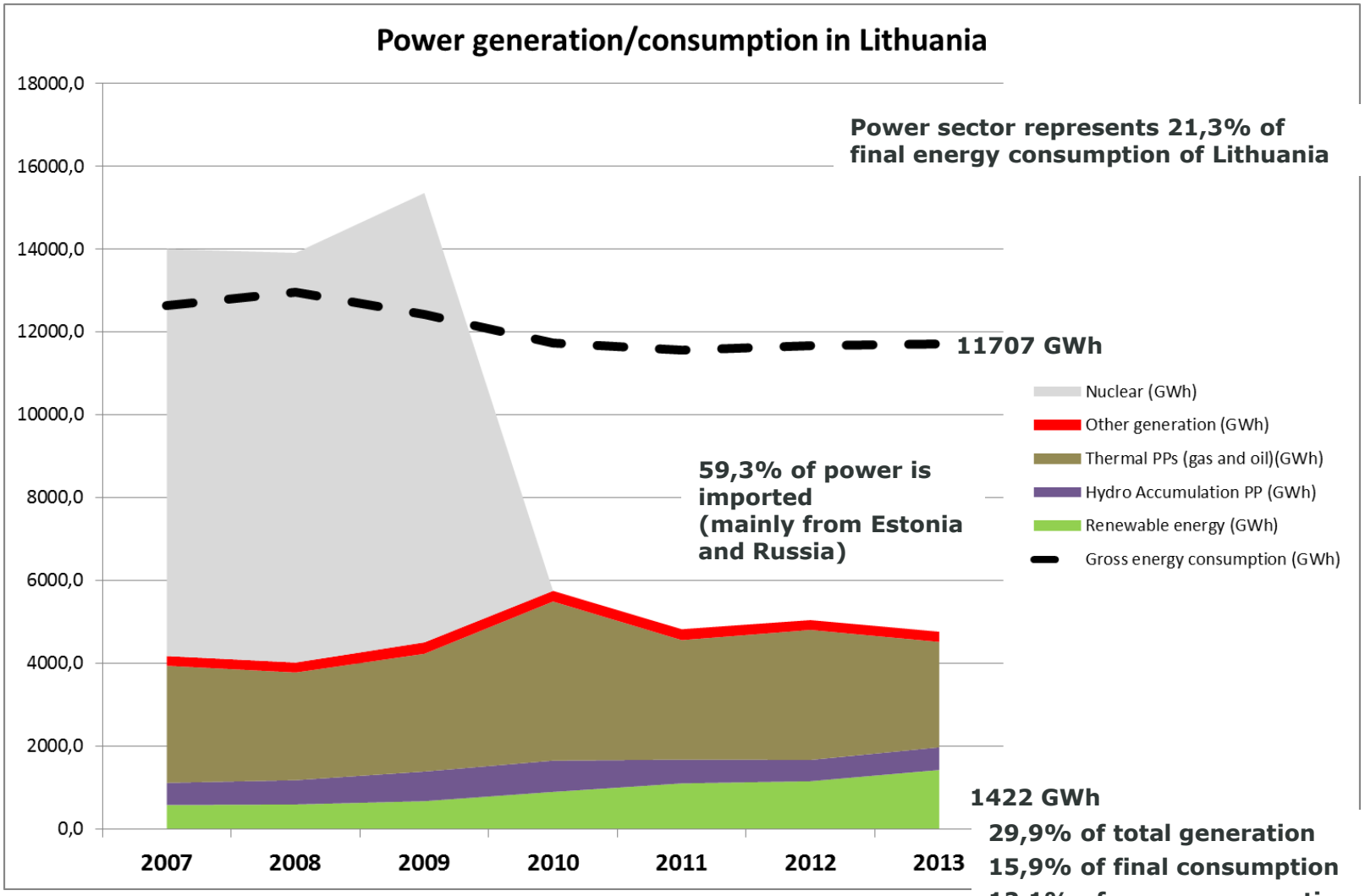

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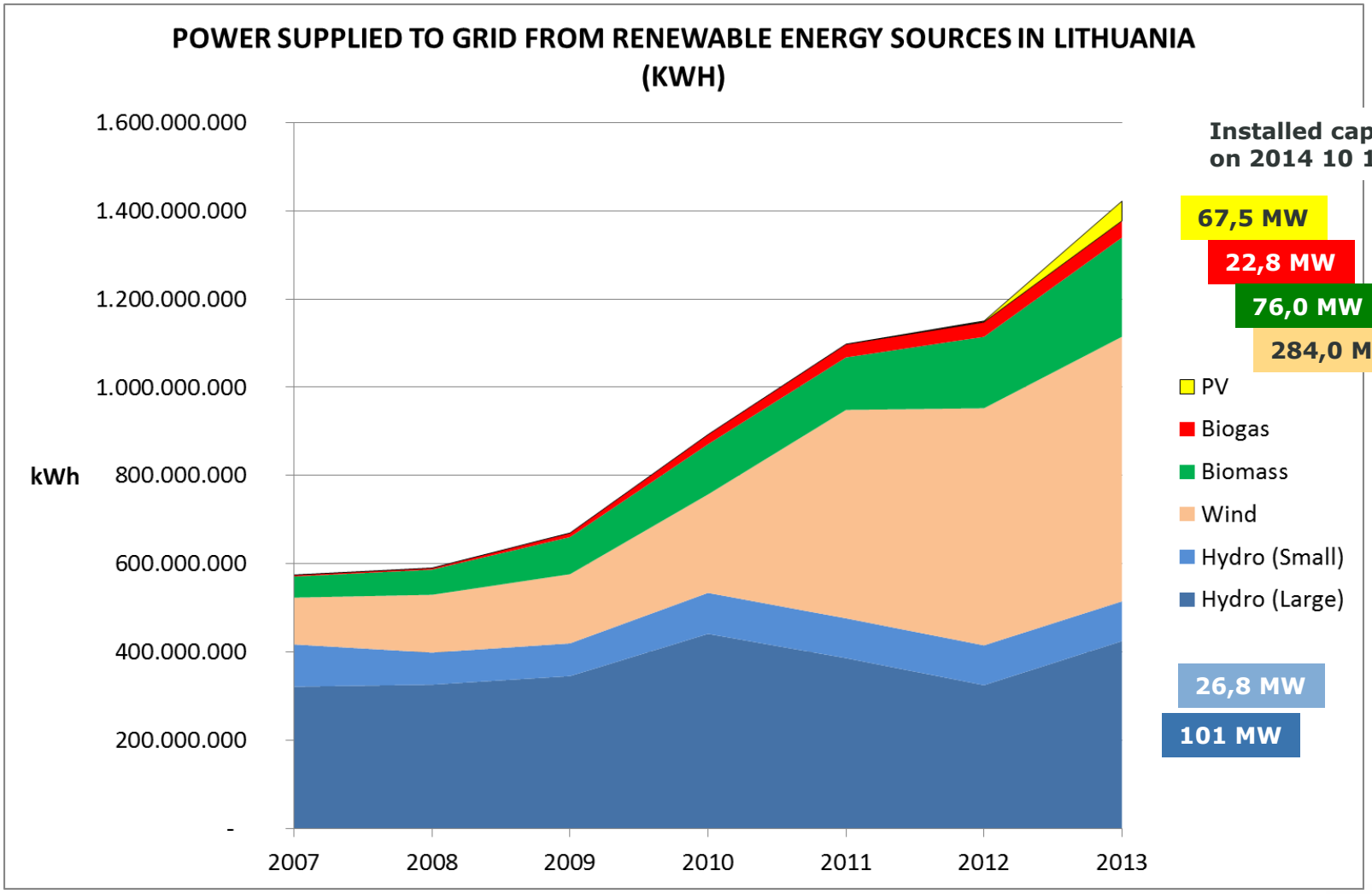

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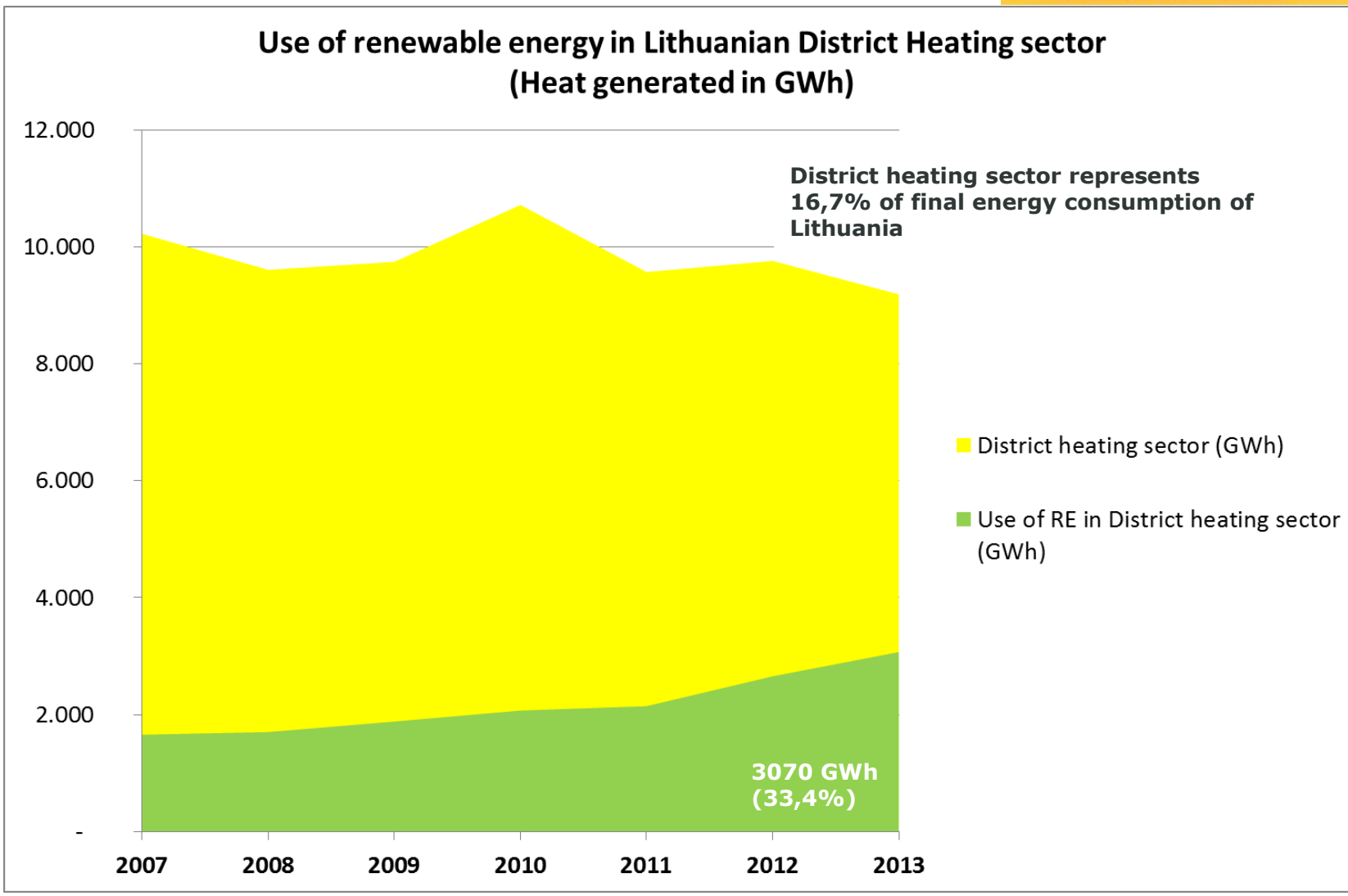

Further possibilities (approved)

- **New on-shore wind power plants**
  Capacities 220 MWp
  Planned generation:
  0,65 TWh(p) (+ 7,3% of final consumption of LT)
  UNDER CONSTRUCTION

- **New biomass CHP plants in Vilnius and Kaunas**
  Capacities (total): 189 MW(p) + 408 MW(h)
  Planned generation:
  1,09 TWh(p) (+ 12,2% of final consumption of LT)
  2,49 TWh (h) (+ 27,1% of DH demand of LT)
  UNDER PLANNING

- **New small scale biomass and biogas power plants**
  Capacities 30 MW(p)
  Planned generation:
  0,20 TWh(p) (+ 2,2 % of final consumption of LT)
  UNDER PLANNING/CONSTRUCTION

- **Number of new biomass boilers in DH**
  UNDER PLANNING/ CONSTRUCTION

+21,7% of final power consumption of Lithuania

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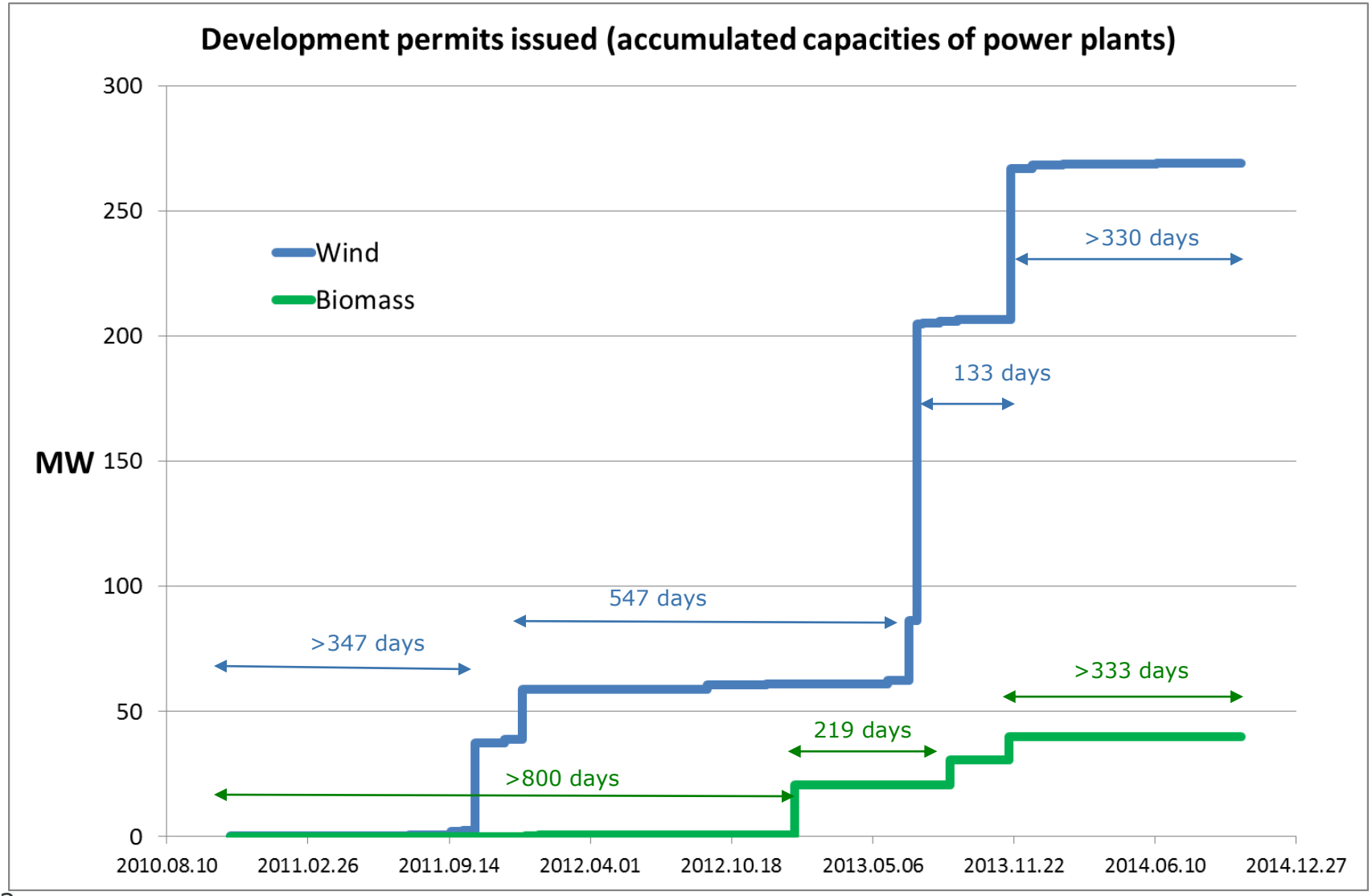
Is everything OK?

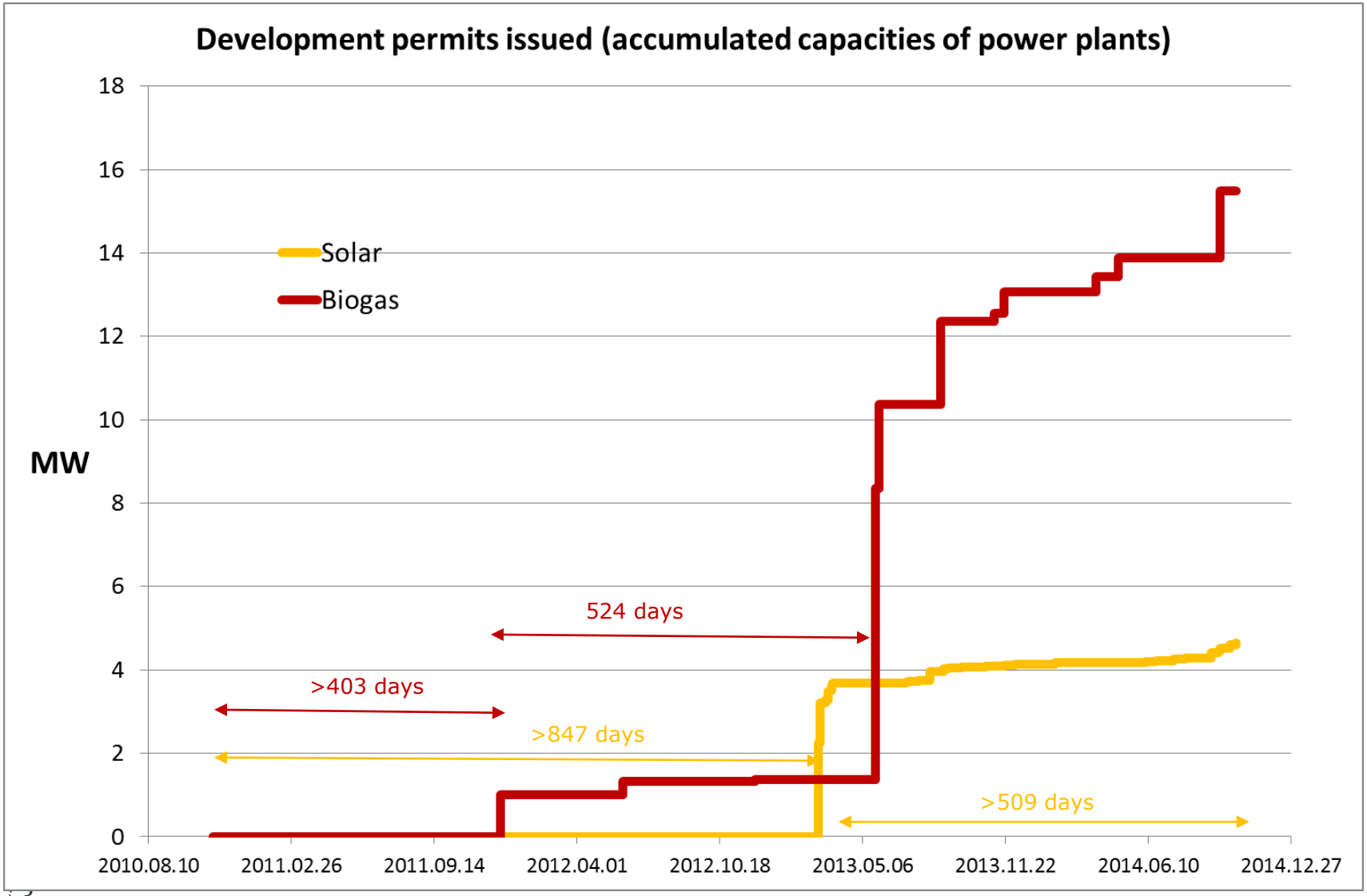
Is it enough?

THE ANSWER IS – NO!

Development is uneven and disharmonious



Development is uneven and disharmonious



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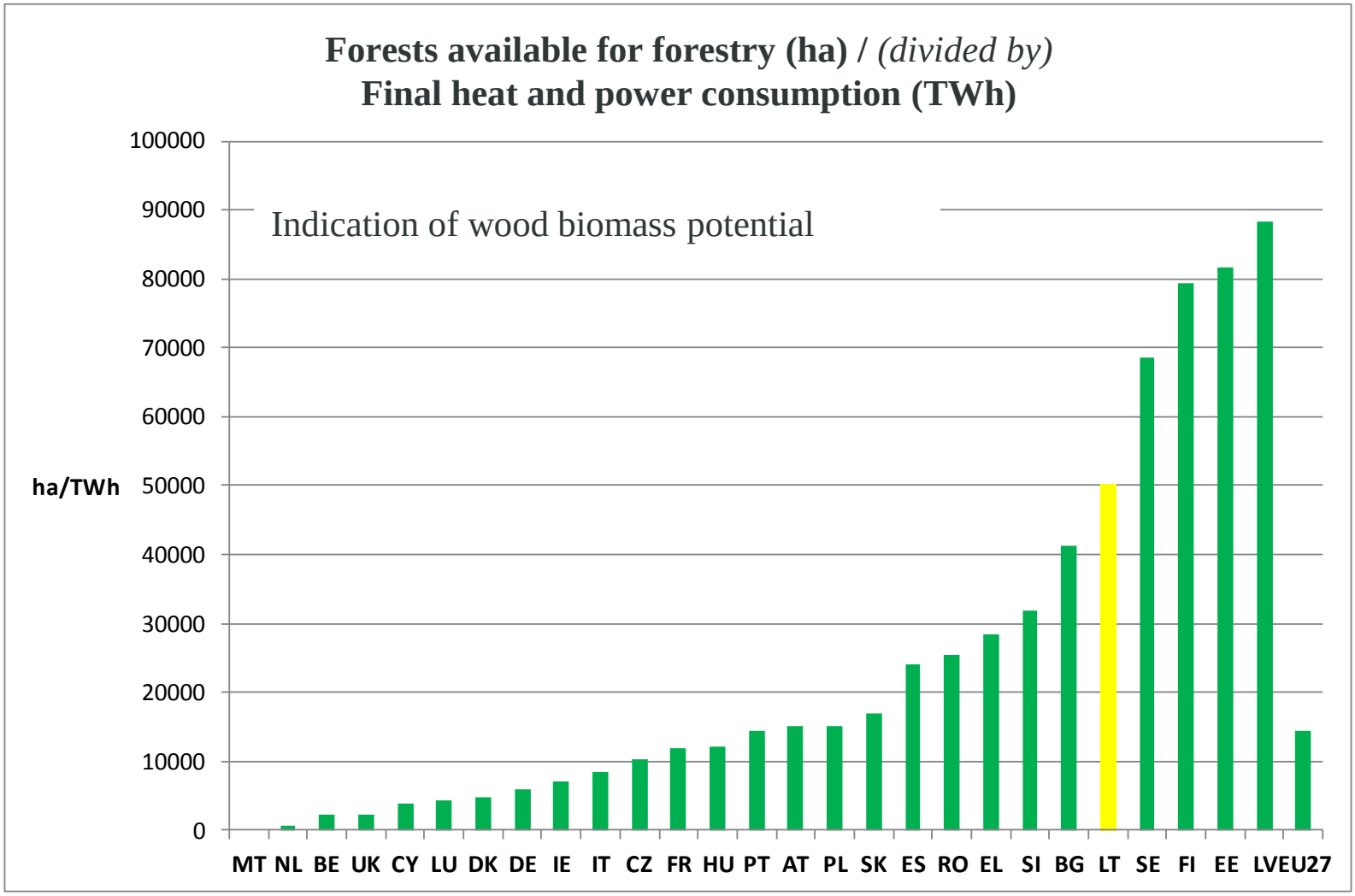
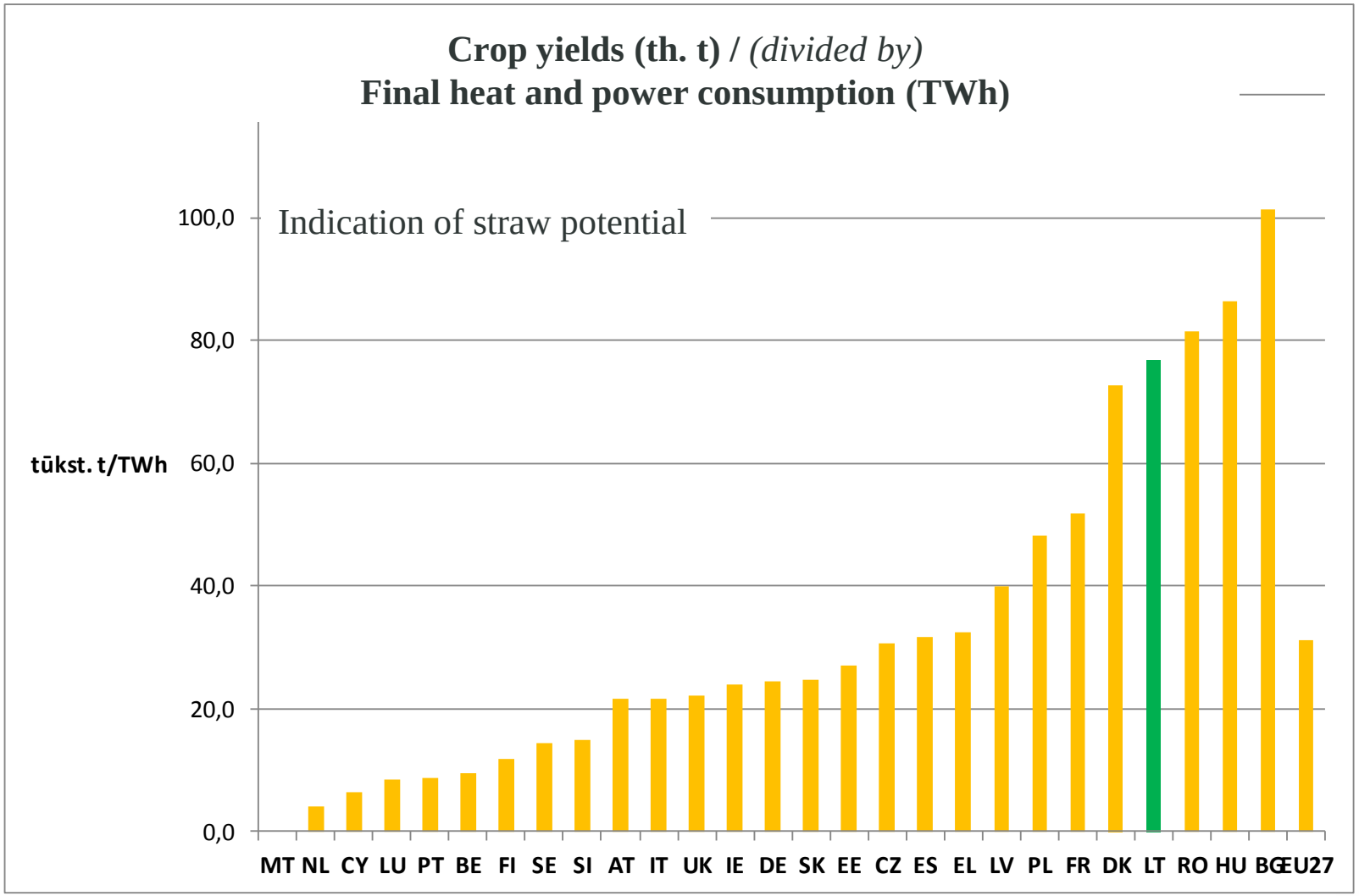
LITHUANIA - Potential for renewable energy development

Lithuania - large biomass resources available (I)



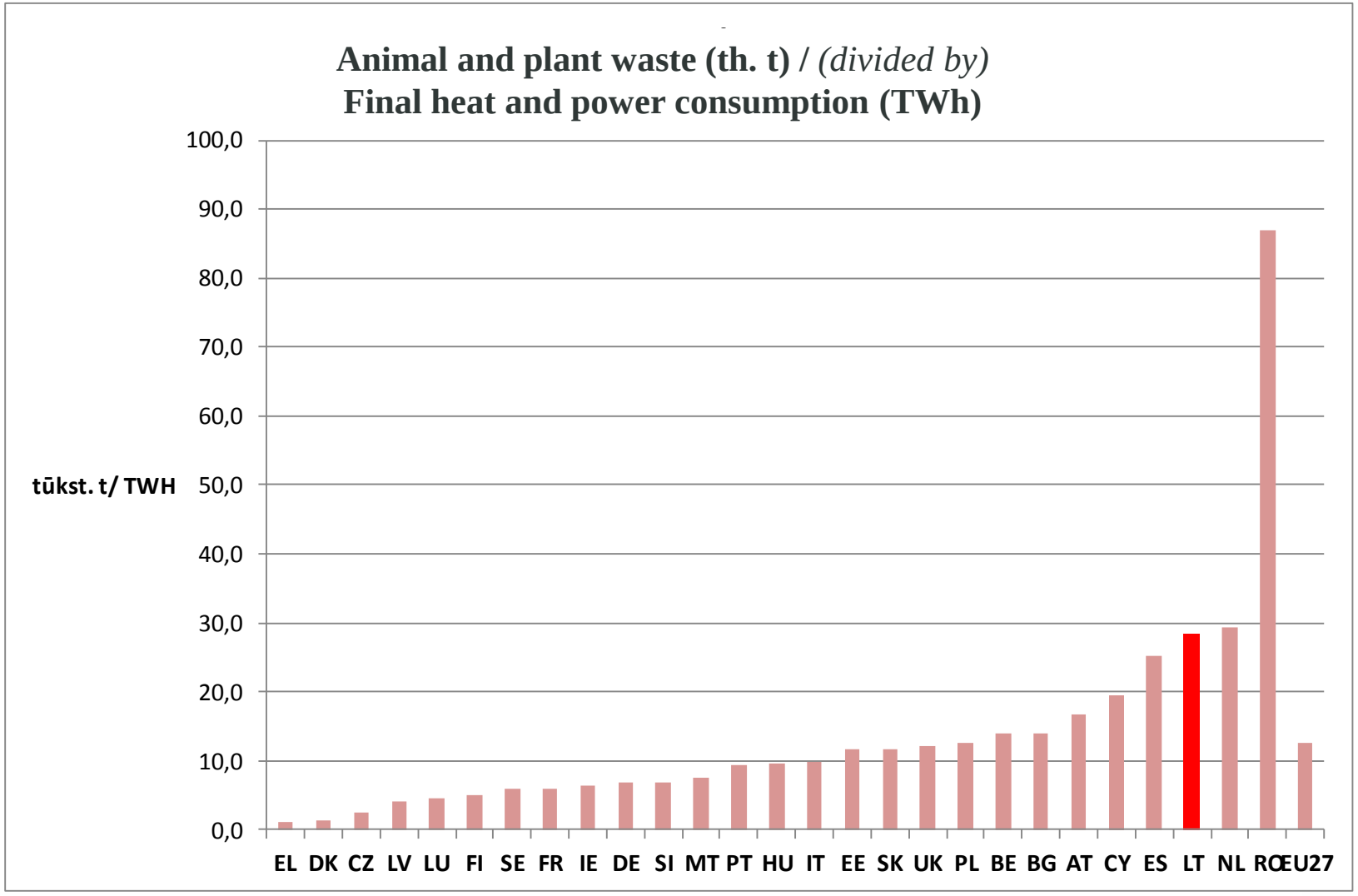
EUROSTAT 2010

Lithuania - large biomass resources available (II)

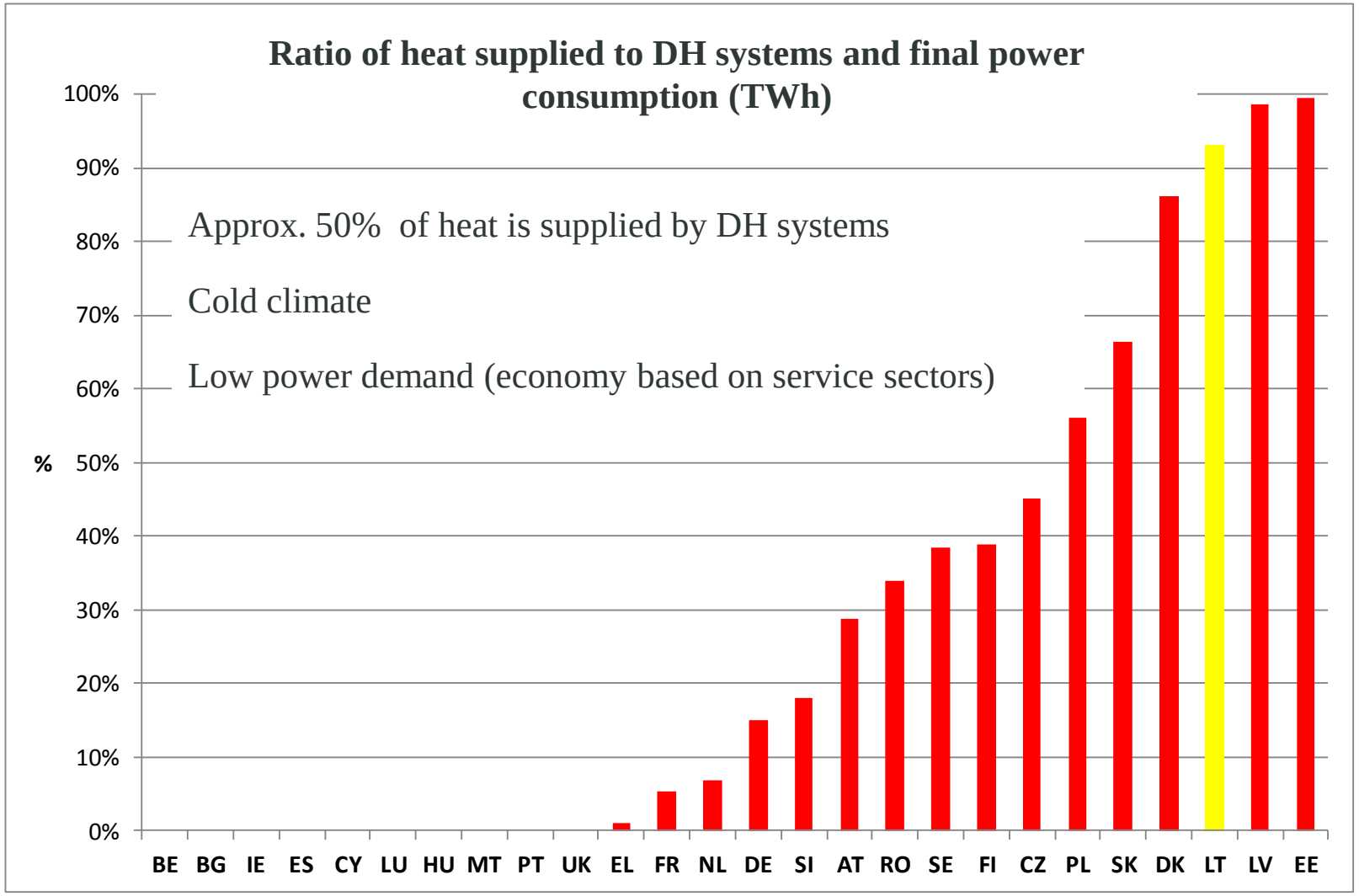


EUROSTAT 2010

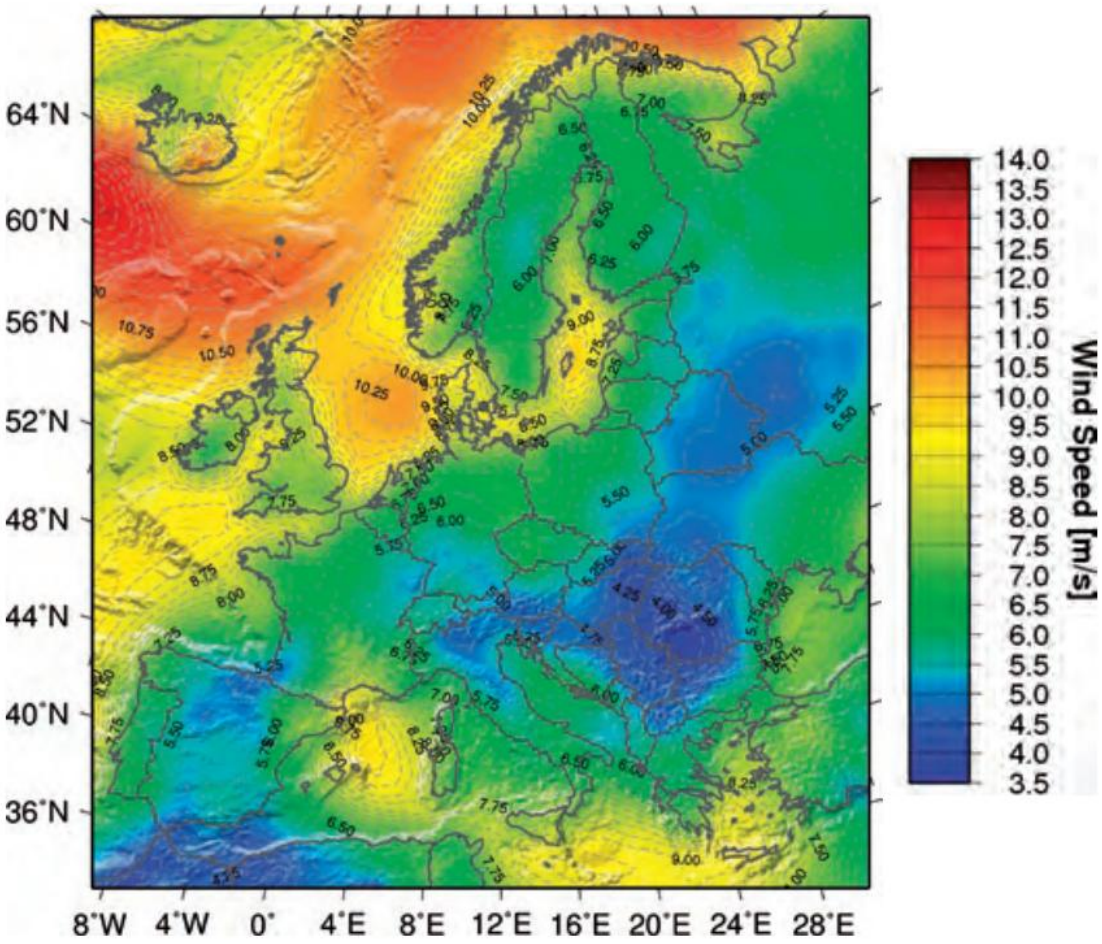
Lithuania - large biomass resources available (III)



Lithuania - favourable ratio (for cogeneration) of centralized heat and power



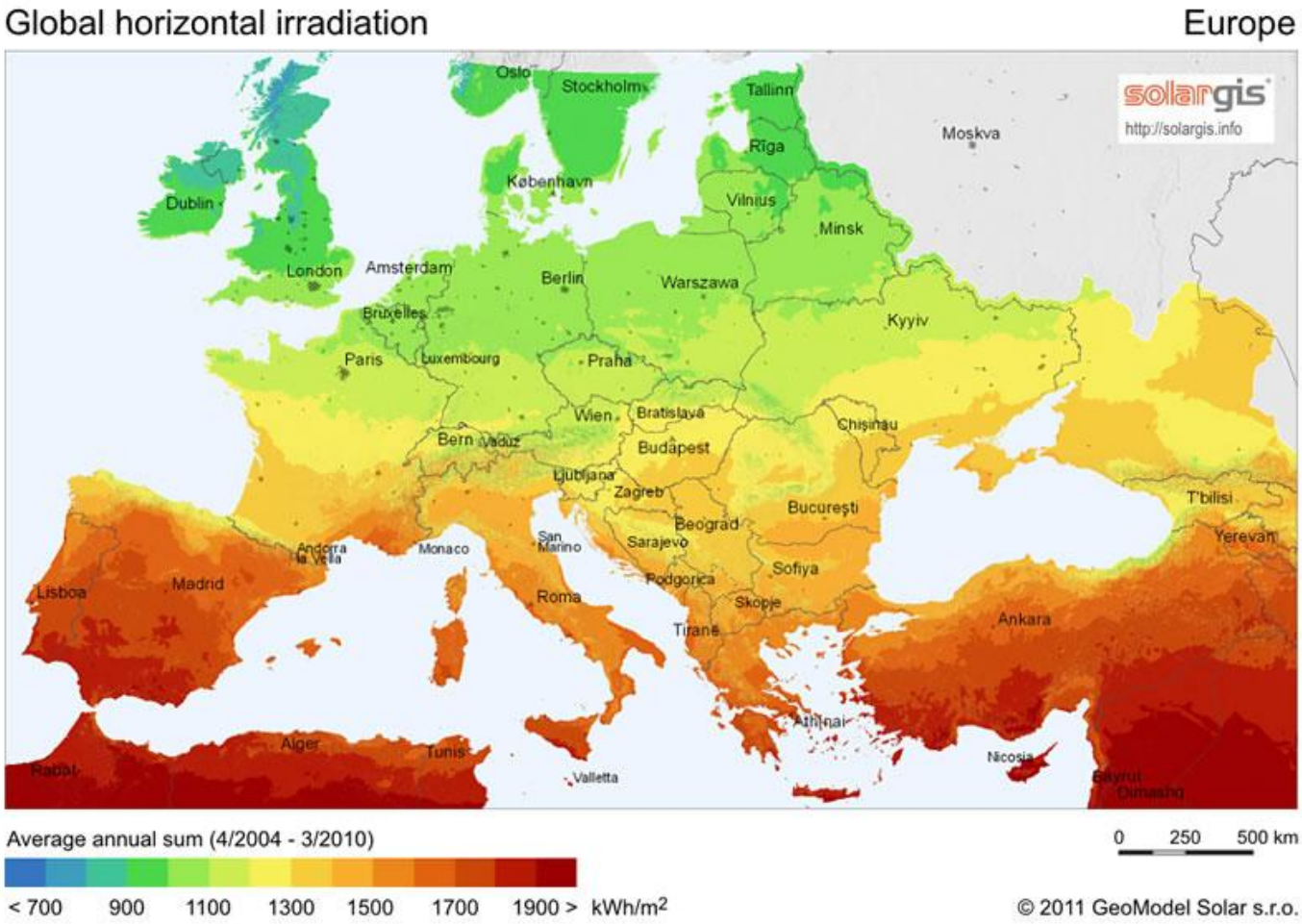
Lithuania – windy country



	Area with average wind speed at 50 m high > 5.8 m/s [th. km2] National Renewable Energy Laboratory (US)	Gross power consumption in 2009 metais [TWh]	[km2 / TWh]
DE	26.0	580.2	45
LT	1.9	12.4	156
LV	4.3	7.2	561
EE	19.2	8.9	2169
LT+ LV+ EE	**25.4**	**28.5**	**892**

http://www.anemos.de/5/files/anemos-handout-eu.pdf

Lithuania – sunny country



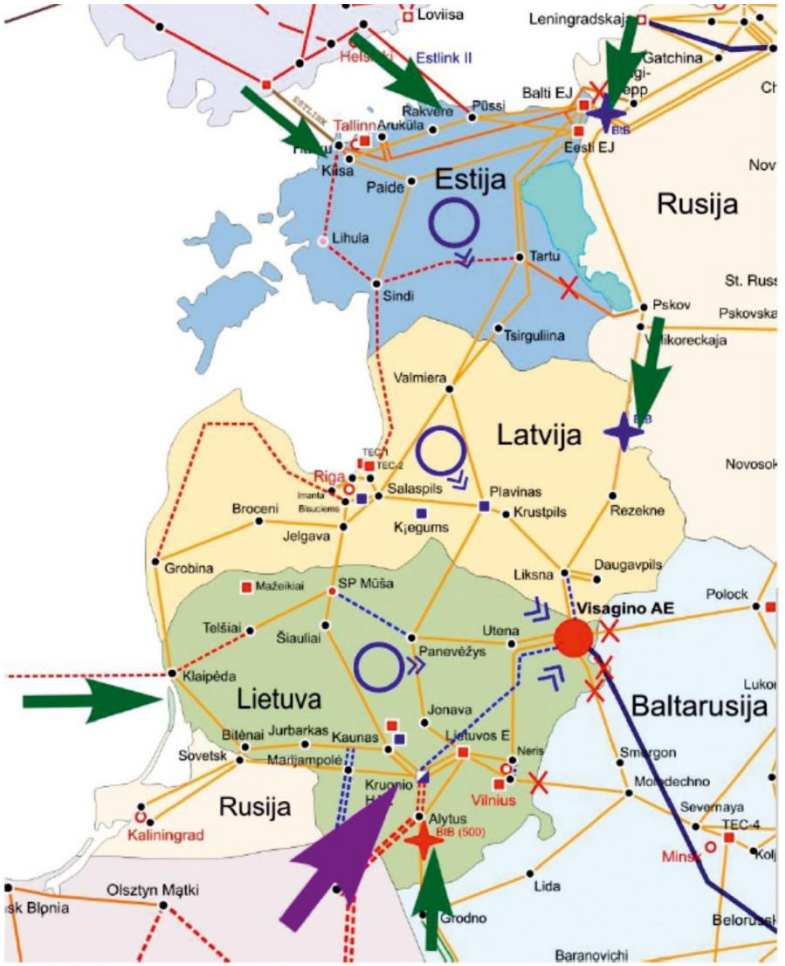
Great power interconnections allows easy integration of large amount of VRE power

- Total peak demand of Baltic countries is about 4500 MW

- Interconnections:

  to Finland about 900 MW
  to Russia about 1600 MW
  to Belarus about 1350 MW
  to Sweden 700 MW (from 2016)
  to Poland 1000 MW (from 2016)
  in TOTAL: about 5550 MW

- **Kruonis hydro accumulation plant is available (900 MW + expansion planned)**
  + Estonian planned new hydro accumulation plant
  + Latvian large hydropower plants



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Baltic countries is the best place for renewable energy in EU!

Further possibilities (discussed)

- **Additional new on-shore wind power plants**
  Capacities: 350 MWp
  Planned generation:
  1,05 TWh(p) (+ 12 % of final consumption of LT)
- **Offshore wind power plants in Baltic sea**
  Capacities: up to 1000 MW(p)
  Planned generation:
  up to 4 TWh(p) (+ up to 44% of final consumption of LT)
- **New small scale biomass and biogas power plants**
  Capacities 150 MW(p)
  Planned generation:
  0,75 TWh(p) (+ 8 % of final consumption of LT)
- **Small scale solar PV plants**
  Capacities up to 500 MW(p)
  Planned generation:
  up to 0,5 TWh(p) (+up to 6% of final consumption)
- **…… other**

+70% of final power consumption of Lithuania

RE power production will be larger than final power demand of Lithuania!

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EXISTING OBSTACLES

Existing obstacle – Way of thinking of majority of politicians

"Scandinavian"

External benefits (green jobs, added value to economy, etc.) and external cost (climate change, pollution) are considered

Goal: lowest share of energy expenditures (incl. external cost) in the incomes of coming generation

"Eastern European"

EU directive requirements are considered

Goal: lowest price of energy today

Existing obstacle – Way of thinking of majority of politicians

"Scandinavian"

Concentration on creation of system where every consumer and investor is motivated to behave in the way what is most beneficial for the society

"Eastern European"

Concentration on implementation of large strategic energy projects

Some of them are good, some of them are not…
Some of them are obstacles for RE development even when they are not implemented…

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WHAT ARE THE NEXT STEPS?

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- High level study on estimation of external cost and benefit of development of renewable energy in Baltic states
- Common energy strategy of Baltic states
- Creation of system for public funding of RE development
- Attracting of EU and US investors into RE sector of Baltic countries (including technology development and production…)

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Thank you for your attention!

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