



LIETUVOS HIDROENERGETIKA: DABARTIS IR PERSPEKTYVOS

Seminaras 2011 09 29, Kaunas-Akademija, ASU (LŽŪU)



ES hidroenergetikos duomenų bazės HYDI aptarimas

Egidijus Kasiulis, Lietuvos
hidroenergetikų asociacija / ASU



Intelligent Energy



Europe





You are here: Home - HYDI DATABASE

HYDI - The European Hydro Database



The HYDI (Hydro Data Initiative) provides statistics and information on energy, market and policy data covering the entire Hydropower sector in EU-27 Member States for all users for the first time in history. Access to the database is free of charge - you can extract tailor-made data in excel format according to your needs. The baseline year for data is 2007 - yearly updates will be made to the database and CD-ROMS and News Releases will be disseminated accordingly. The project has produced an [Awareness Raising document](#) on the current status of SHP in the EU-27 including figures for 2020. You can download the latest Stream Map press release [here](#).

Please download the [methodological notes](#) with specific definitions to each variable used in the HYDI database.

For more info:
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63-65 Rue d'Artois | B-1040 Brussels, Belgium
T + 322 846 1545 | F + 322 846 1547
Email: info@esha.be

The Stream Map project is funded by the EC programme of the European Commission under the responsibility of the EAC.

Logos: EURELECTRIC, Hydro Equipment Association, Observ'ER, INTELLIGENT ENERGY EUROPE.

<http://streammap.esha.be/6.0.html>

- Statistiniai duomenys**
- Rinkos duomenys**
- Teisės aktai**



Statistiniai duomenys

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Search Energy Data




- Einamųjų metų duomenys
- Prognozė
- Potencialas

Einamųjų metų duomenys

Search Energy Data - Current data

Countries	Variables	Years
<input type="checkbox"/> EU-27 Italy Latvia Lithuania Luxembourg Netherlands	<input type="checkbox"/> Select all Number of power plants Installed gross capacity (MW) Gross electricity generation (GWh/year) Electricity consumption - Pumped storage power plants (GWh/year) Normalised Electricity Generation (GWh)	<input type="checkbox"/> Select all 2007 2008 2009 2010





- HE skaičius
- Instaliuota galia
- Elektros gamyba
- Sunaudota elektra HAE
- Normalizuota elektros gamyba

EU-27
 Austria
 Belgium
 Bulgaria
 Czech Republic
 Denmark







Select all
 Number of power plants
 Installed gross capacity (MW)
 Gross electricity generation (GWh/year)
 Electricity consumption - Pumped storage power plants (GWh/year)
 Normalised Electricity Generation (GWh)

Select all
 2007
 2008
 2009
 2010

Search 




Search Results

Country 	Year	Variable	Small hydropower (< 10MW)			Large hydropower (> 10MW)			Total hydro (only renewable)
			< 1 MW	1-10 MW	Total <= 10MW	Total Large	Of which natural inflow in mixed pumping	Pure and mixed pumping (non renewable)	
 Lithuania	2007	Number of power plants	78	4	82	1	0	1	83
 Lithuania	2007	Installed gross capacity (MW)	16	12	28	101	0	900	129
 Lithuania	2007	Gross electricity generation (GWh/year)	68	28	96	325	0	538	421
 Lithuania	2007	Electricity consumption - Pumped storage power plants (GWh/year)	N/A	N/A	N/A	N/A	N/A	743	N/A
 Lithuania	2007	Normalised Electricity Generation (GWh)			70	345	N/A	N/A	415
 Lithuania	2008	Number of power plants	81	4	85	1	0	1	86
 Lithuania	2008	Installed gross capacity (MW)	16.6	12.2	29	101	0	900	130
 Lithuania	2008	Gross electricity generation (GWh/year)	51	21	72	329	0	586	401
 Lithuania	2008	Electricity consumption - Pumped storage power plants (GWh/year)	N/A	N/A	N/A	N/A	N/A	809	N/A
 Lithuania	2008	Normalised Electricity Generation (GWh)			72	345	N/A	N/A	417
 Lithuania	2009	Number of power plants	81	4	85	1	0	1	86
 Lithuania	2009	Installed gross capacity (MW)	16.6	12.2	29	101	0	900	130
 Lithuania	2009	Gross electricity generation (GWh/year)	54	20	74	350	0	715	424
 Lithuania	2009	Electricity consumption - Pumped storage power plants (GWh/year)	N/A	N/A	N/A	N/A	N/A	987	N/A
 Lithuania	2009	Normalised Electricity Generation (GWh)			74	348	N/A	N/A	422

Prognozė

Search Energy Data - Forecasts

Countries	Variables	Size of plant	Years
<input type="checkbox"/> EU-27 Ireland Italy Latvia Lithuania Luxembourg	<input type="checkbox"/> Select all Number of plants Installed capacity (MW) Gross Electricity Generation (GWh/year)	<input type="checkbox"/> Select all Small Hydro (<10 MW) Large Hydro (>10 MW) Pumped storage	<input type="checkbox"/> Select all 2011 2012 2020



- HE skaičius
- Instaliuota galia
- Elektros gamyba

Country	Year	Size of plant	Variable	Under construction (Total)	Under construction (New)	Under construction (Upgrade)	Planned (Total)
Lithuania	2011	Small Hydro (<10 MW)	Number of power plants	2	2	0	0
Lithuania	2011	Large Hydro (>10 MW)	Number of power plants	0	0	0	0
Lithuania	2011	Pumped storage	Number of power plants				
Lithuania	2011	Small Hydro (<10 MW)	Installed gross capacity (MW)	1	1		
Lithuania	2011	Large Hydro (>10 MW)	Installed gross capacity (MW)	0	0	0	0
Lithuania	2011	Pumped storage	Installed gross capacity (MW)				
Lithuania	2011	Small Hydro (<10 MW)	Gross electricity generation (GWh/year)	4	4		
Lithuania	2011	Large Hydro (>10 MW)	Gross electricity generation (GWh/year)	0	0	0	0
Lithuania	2011	Pumped storage	Gross electricity generation (GWh/year)				
Lithuania	2020	Small Hydro (<10 MW)	Number of power plants				110
Lithuania	2020	Large Hydro (>10 MW)	Number of power plants				1
Lithuania	2020	Pumped storage	Number of power plants				
Lithuania	2020	Small Hydro (<10 MW)	Installed gross capacity (MW)				40
Lithuania	2020	Large Hydro (>10 MW)	Installed gross capacity (MW)				1600
Lithuania	2020	Pumped storage	Installed gross capacity (MW)				
Lithuania	2020	Small Hydro (<10 MW)	Gross electricity generation (GWh/year)				120
Lithuania	2020	Large Hydro (>10 MW)	Gross electricity generation (GWh/year)				1500
Lithuania	2020	Pumped storage	Gross electricity generation (GWh/year)				

Potencialas

Search Energy Data - Potential

Countries

 EU-27

- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg

Variables

 Select all


- Production (GWh)
- Capacity (MW)

Size of plant

 Select all

- Small Hydro (<10 MW)
- Large Hydro (>10 MW)

?



- Elektros gamyba
- Instaliuota galia

Search Results

Country	Size of plant	Variable	Gross theoretical potential	Technically feasible potential	Economically feasible potential	Economic potential with environmental constraints in 2009	Degree of development (%) of economically feasible potential		
							2009	2020	2030
Lithuania	Small Hydro (<10 MW)	Production (GWh)	2094	854	287	126	25	41	50
Lithuania	Large Hydro (>10 MW)	Production (GWh)	3940	1236	1000	0	35	35	40
Lithuania	Small Hydro (<10 MW)	Capacity (MW)	195	70	42	42			
Lithuania	Large Hydro (>10 MW)	Capacity (MW)	n/a	282	250	0			



Rinkos duomenys



- Hidroenergetikos sektorius**
- Ekonomika**

Hidroenergetikos sektorius

You are here: [Home](#) > [HYDI Database](#) > [Market data](#) > [Industrial data](#)

Search Market Data - Industrial

Countries	Variables	Years
<input type="checkbox"/> EU-27	<input type="checkbox"/> Select all	<input type="checkbox"/> Select all
<input type="text" value="Austria"/>	<input type="text" value="Number of companies"/>	<input type="text" value="2009"/>
<input type="text" value="Belgium"/>	<input type="text" value="Employment - Equipment suppliers"/>	<input type="text" value="2010"/>
<input type="text" value="Bulgaria"/>	<input type="text" value="Employment - Engineering activities"/>	
<input type="text" value="Estonia"/>	<input type="text" value="Employment - Operation & Maintenance"/>	
<input type="text" value="Finland"/>	<input type="text" value="Employment - Others"/>	

- Kompanijų skaičius
- Dirbančiųjų skaičius
 - ❖ Tiekimas
 - ❖ Inžinerija etc.

Hidroenergetikos ekonomika


Search Market Data - Economics

Countries

 EU-27

Variables

 Select all



- Austria
- Belgium
- Bulgaria
- Czech Republic
- Estonia

- Average Investment cost (€/kW)
- Average Cost per KWh produced (€)
- Average O&M Cost (as % of total investment cost)
- Average lifetime of the mechanical equipment (number of years)
- Average Civil Works Cost (as a % of total investment cost)

- Investicijų kaštai
- I kWh savikaina
- Naudojimo ir priežiūros išlaidos etc.


Search Market Data - Economics

Countries

 EU-27

Variables

 Selected all



- Austria
- Belgium
- Bulgaria
- Czech Republic
- Estonia

- Average Investment cost (€/kW)
- Average Cost per KWh produced (€)
- Average O&M Cost (as % of total investment cost)
- Average lifetime of the mechanical equipment (number of years)
- Average Civil Works Cost (as a % of total investment cost)

Search Results






Country	Variable	Small Hydro (<10 MW)		Large Hydro (>10 MW)	
		Low head	High head	Pure hydro	Pumped storage
Lithuania	Average Cost per KWh produced (€)	0.025-0.030		0.01	0.035
Lithuania	Average O&M Cost (as % of total investment cost)	3.0-5.0		3	
Lithuania	Average lifetime of the mechanical equipment (number of years)	30		40	
Lithuania	Average Civil Works Cost (as a % of total investment cost)	30			80
Lithuania	Internal Rate of Return (Average in %)	10-12.0			

Teisės aktai



- Parama (pvz. fiksuoti tarifai)
- Koncesijos (leidimai)
- HE teisės aplinka

Parama (TARIFA...)

Country	Year	Variable	Type	Measurement
 Belgium	2009	Small Hydro	Investment aid + Tax (fiscal) deduction + Green Certificate + Net-metering	<p>Investment aid: the percentage is determined based on the extra cost (case by case analysis - up to 35% of investment costs). Only small and middle sized companies are eligible, IF not bounded with a big energy company.</p> <p>Fiscal deduction up to 13,5% of investment costs for companies.</p> <p>Green Certificate delivered for 10 years, supplier quota fixed at 9%, sanction fee 100€ & purchase obligation from the DSO at 65€/GC, 1GC=1MWh.</p> <p>Extended duration GC from 10 to 15 years with factor "k" for new installations (reducing foactor for years 10 to 15: <500kw = 100% - <1MW = 65% - >1MW = 25%).</p> <p>Historical installations built before 01/05/2001 get a reduction factor ("q" value run-off [0;1MW]=80; run-off[1MW;]=50; storage=50) from year 2008 onwards -> plants with heavy refurbishment can receive GC back for a new period of 15 years (if >20% more production or end of life or if re-investment > 50% of initial investment)</p> <p>Net-metering for installation (compensation) for installations < 10KW: electricity production can be compensated on a yearly basis at supplier's price, the so-called 'turning backwards meter'.</p>
 Bulgaria	2009	Small Hydro	FIT < 10MW	<p>110,79 BGN/MWh</p> <p>Up to 20% return</p>
 Czech Republic	2009	Small Hydro	Guaranteed tariff & Green bonus	<p>Run of river:</p> <ul style="list-style-type: none"> Guaranteed tariff: 100.75 € / MWh (118.58 in 2010 & 2011) Green bonus: 47.01 € /MWh (80.24 in 2010 & 2011) <p>Storage plants in peak or semi-peak operation</p> <ul style="list-style-type: none"> Guaranteed tariff: 141.79 € / MWh (150.2 in 2010 & 2011) Green bonus: 63.43 € /MWh (96.84 in 2010 & 2011) <p>+ investment support on 13 projects approved and 6 sponsored (Operational Programme Enterprise and Innovations (OPEI) 2007-2013: ECO-ENERGY Programme)</p>
 Denmark	2009	Small Hydro	Tax incentive	<p>Act to Promote Renewable Energy</p> <p>§ 47 This provision deals with electricity generated by plants using only</p> <ol style="list-style-type: none"> solar power, wave power or hydropower <p>or</p> <ol style="list-style-type: none"> other renewable energy sources apart from biogas and biomass, see § 44-46. <p><u>Paragraph 2.</u></p> <p>For electricity from grid connected by 21 April 2004 provides an additional price to be fixed so that this and the following § 51 paragraph 2, No. 1, provided market constituting 600 DKK/MWh. The supplement granted for 20 years from grid connection, but at least for 15 years from first January 2004.</p> <p>§ 5 Additional charge for electricity generated by hydropower, see § 47 and 48 of the Law on Renewable energy, can not exceed DKK 1,500,000 annually.</p> <p>www.retsinformation.dk/</p>
 Estonia	2009	Small Hydro	Feed-in tariff or a fixed pre-mium (in addition to the electricity price) that the utility is legally obligated to pay	<p>The feed-in-tariff is 73.39, the fixed premium is 53.61 € per MWh sold. No longer restrictions.</p>

Country	Year	Variable	Type	Measurement
Lithuania	2008	Small Hydro	Feed in Tariff	5.8 € cents/kWh
Lithuania	2009	Small Hydro	Feed in Tariff	7.53 €cents /kWh
Luxembourg	2008	Small Hydro	Feed in tariff / Investment subsidies	<p>The FIT applicable for new plants since 2008 are:</p> <ul style="list-style-type: none"> - Up to 1 MW of installed capacity: $105 \times (1 - (n - 2008) \times 0.25/100)$ € per MWh - From 1 to 6 MW of installed capacity: $85 (1 - (n - 2008) \times 0.25/100)$ € per MWh (<i>n</i> is the first year of electricity generation; guaranteed for 15 years) <p>Up to 20 % of investment cost.</p>
Luxembourg	2009	Small Hydro	Feed in tariff / Investment subsidies	<p>The FIT applicable for new plants since 2008 are:</p> <ul style="list-style-type: none"> - Up to 1 MW of installed capacity: $105 \times (1 - (n - 2008) \times 0.25/100)$ € per MWh - From 1 to 6 MW of installed capacity: $85 (1 - (n - 2008) \times 0.25/100)$ € per MWh (<i>n</i> is the first year of electricity generation; guaranteed for 15 years)
Luxembourg	2007	Small Hydro	FIT / Investment subsidies	<p>The FIT applicable for new plants since 2005 until the end of 2007 were:</p> <ul style="list-style-type: none"> - Up to 500 kW of installed capacity: 77.6 € per MWh - From 501 kW to 10 MW of installed capacity: between 54 and 77.6 € per MWh <p>Up to 20 % of investment cost.</p> <p>For companies: request to be submitted to the Ministry of Economy and Foreign Trade</p>
Latvia	2007	Small Hydro	Feed-in-Tariff	<p>Tariff was related to the natural gas price T_g using this formula:</p> $\text{FIT} = T_g \times K \times 3.8/9.2.$ <p>K-coefficient depending on SHP installed power <i>P</i>.</p> <p>K= 1.24 for $P < 80$ kW;</p> <p>K= 1.231 for $P = 80 \dots 150$ kW;</p> <p>For instance, if $T_g = 318.6$ €/m³, then FIT= 154.6 €/MW</p>
Latvia	2008	Small Hydro	Feed in Tariff	<p>Tariff was related to the natural gas price T_g using this formula:</p> $\text{FIT} = T_g \times K \times 3.8/9.2.$ <p>K-coefficient depending on SHP installed power <i>P</i>.</p> <p>K= 1.24 for $P < 80$ kW;</p> <p>K= 1.231 for $P = 80 \dots 150$ kW;</p> <p>For instance, if $T_g = 318.6$ €/m³, then FIT=154.6 €/MW</p>
Latvia	2009	Small Hydro	Feed-in tariff (According to the rule of the Cabinet of Ministers of 24 February, 2009)	<p>FIT= $159 \times K \times e$.</p> <p>K- coefficient depending on SHP installed power <i>P</i>; e- exchange rate Lata/Euro =0.7028.</p> $\text{FIT} = 159 \times 1.24 \times 0.7028 = 138.566 \text{ €/MW.}$ <p>After 10 years FIT will be decreased by factor 0.8: FIT= $159 \times k \times 0.8$</p>

Koncesijos



You are here: [Home](#) > [HYDI Database](#) > [Policy data](#) > [Concessions](#)

Search Policy Data - Concessions

Countries	Variables	Years	Type of permits
<input type="checkbox"/> EU-27 Austria Belgium Bulgaria Denmark Estonia	<input type="checkbox"/> Select all Small Hydro (<10 MW) - New permits Small Hydro (<10 MW) - Refurbishment + Relicensing Large Hydro (>10 MW) - New permits Large Hydro (>10 MW) - Refurbishment + Relicensing	<input type="checkbox"/> Select all 2007 2008 2009 2010 2011	<input type="text"/> 

- Leidimai naujai HE statybai
- Leidimai HE atnaujinimui, pratęsimui

Countries Variables Years Type of permits

EU-27 Select all


Austria
Belgium
Bulgaria
Denmark
Estonia

Small Hydro (<10 MW) - New permits
Small Hydro (<10 MW) - Refurbishment + Relicensing
Large Hydro (>10 MW) - New permits
Large Hydro (>10 MW) - Refurbishment + Relicensing




Select all

2007
2008
2009
2010
2011

Search



Search Results

Country	Year	Variable	Type of permits needed & average waiting time	Nr of plants granted
 Lithuania	2007	Small Hydro (<10 MW) - New permits	<p>From 6 months to 2 years.</p> <p>In total some 10 authorisations issued by different authorities are needed. It could take up to 2 years for a developer to start building a SHP.</p> <p>The licence (permit) for power production must be obtained independently from SHP size. It is authorised forever.</p> <p>Water or site rights are granted for a period of 50 to 99 years.</p> <p>There is no significant difference between new permits and relicensing.</p> <p>i.e.: new and old SHP must go to the same procedures.</p>	3
 Lithuania	2008	Small Hydro (<10 MW) - New permits	<p>From 6 months to 2 years.</p> <p>In total some 10 authorisations issued by different authorities are needed. It could take up to 2 years for a developer to start building a SHP.</p> <p>The licence (permit) for power production must be obtained independently from SHP size. It is authorised forever.</p> <p>Water or site rights are granted for a period of 50 to 99 years.</p> <p>There is no significant difference between new permits and relicensing.</p> <p>i.e.: new and old SHP must go to the same procedures.</p>	2
 Lithuania	2009	Small Hydro (<10 MW) - New permits	<p>From 6 months to 2 years.</p> <p>In total some 10 authorisations issued by different authorities are needed. It could take up to 2 years for a developer to start building a SHP.</p> <p>The licence (permit) for power production must be obtained independently from SHP size. It is authorised forever.</p> <p>Water or site rights are granted for a period of 50 to 99 years.</p> <p>There is no significant difference between new permits and relicensing.</p> <p>i.e.: new and old SHP must go to the same procedures.</p>	2

HE teisinė aplinka



You are here: [Home](#) > [HYDI Database](#) > [Policy data](#) > [Legislation](#)

Search Policy Data - Legislation

Countries	Type	Years	Search in Reference and Summary/Impact 
<input type="checkbox"/> EU-27	<input type="checkbox"/> Select all	<input type="checkbox"/> Select all	<input type="text"/>
<input type="checkbox"/> Austria	<input type="checkbox"/> Energy	<input type="checkbox"/> 2007	
<input type="checkbox"/> Belgium	<input type="checkbox"/> Environmental	<input type="checkbox"/> 2008	
<input type="checkbox"/> Bulgaria	<input type="checkbox"/> Other	<input type="checkbox"/> 2009	
<input type="checkbox"/> Czech Republic		<input type="checkbox"/> 2010	
<input type="checkbox"/> Denmark		<input type="checkbox"/> 2011	

Energetika

Aplinka

Search Policy Data - Legislation

Countries Type Years Search in Reference and Summary/Impact 

EU-27 Select all Select all

Austria
 Belgium
 Bulgaria
 Czech Republic
 Denmark





Energy
 Environmental
 Other

2007
 2008
 2009
 2010
 2011





Search Results

Country 	Year	Type	Reference	Summary and Impact on Hydropower Development	Links
 Lithuania	2007	Energy	National Energy Strategy (National legislation)	Positive, supports RES and hydropower.	
 Lithuania	2007	Energy	Electric Power Law, (2000, last amendment 2004) - National legislation	Positive, supports RES and hydropower.	
 Lithuania	2007	Energy	Rules of Issuing of Guarantees of origin using renewable energy sources, (2005, last amendment 2006) (Ministry of Economy)	Positive, supports RES and hydropower.	
 Lithuania	2007	Environmental	Water Law (1997, last amendment in 2004) (National legislation)	Prevents hydropower development, especially large one.	
 Lithuania	2007	Energy	The Procedure for Promotion of Generation and Purchase of Electricity Generated Using Renewable and Waste Energy Sources (2001, last amendment in 2009) (Government)	Positive, supports RES and hydropower.	
 Lithuania	2008	Energy	Public service obligation (renewable electricity) tariffs (2002, last amendment in 2008) (National control commission for prices and energy)	Positive, supports RES and hydropower.	
 Lithuania	2008	Energy	Licensing rules for power sector (2001, last amendment in 2008) (Government)	Positive, supports RES and hydropower.	
 Lithuania	2008	Energy	Electricity trading rules (2001, last amendment in 2008) (Ministry of Economy)	Positive, supports RES and hydropower.	



LIETUVOS HIDROENERGETIKA: DABARTIS IR PERSPEKTYVOS

Seminaras 2011 09 29, Kaunas, ASU (LŽŪU)



Ačiū už dėmesį



Intelligent Energy



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