

ROLE AND APPROACH TO THE CONNECTION BY DSO IN SLOVENIA

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LEGAL FRAMEWORK

- Direktive 2003/54/EC
- Energy law(EZ-UPB, Off.Gaz. of RS, No.27/2007)
- Decree on the method for the implementation of public service obligation relating to the electricity distribution system operator, and public service obligation relating to the electricity supply to tariff costumers (Off.Gaz. of RS, No. 117/2004)
- Decree on the concession for performing public service obligation relating to the activity of the electricity distribution system operator (Off.Gaz. of RS, No. 39/2007)

LEGAL FRAMEWORK

Concession-system for DSO by law

- Autonomy precondition for concession
- Articles of incorporation: DSO must not be subject to instructions in operational Issues
- Autonomy of DSO in operational issues
- Compliance programme

SODO

- Founded by decision of Slovenian government from 25.04.2007
- Granting the concession for distribution of EE to SODO d.o.o.
- concession contract between SODO and government

Since 1 July 2007 the distribution companies have been operating within a new organisational structure, bringing together the suppliers and the network owners, while the public service of the distribution system operation has been carried out by a new company called SODO, d. o. o.

NETWORK OWNERS

- Elektro Gorenjska, d.d., www.elektro-gorenjska.si
- Elektro Primorska, d.d., www.elektro-primorska.si
- Elektro Celje, d.d., www.elektro-celje.si
- Elektro Maribor, d.d., www.elektro-maribor.si
- Elektro Ljubljana, d.d., www.elektro-ljubljana.si



SODO (article 23a EZ)

COMPETENCE

SODO is responsible for:

- Distribution of electrical energy;
- Development of distribution grid;
- Maintenance of distribution grid;
- Connection to the grid;
- Secure and sustainable supply of electrical energy;
- Nondiscriminatory access to the grid.

PUBLIC ACTS

- General conditions for the supply and consumption of electricity (article 70 EZ)
- Distribution System Operation Directions (article 40 EZ)

are issued by DSO upon the public authorization after the previously received consensus from Agency for Energy and from the Government.

GENERAL CONDITIONS FOR CONNECTION TO THE DISTRIBUTION ELECTRIC SYSTEM

Issued 31.12.2007 Off.Gaz. of RS, No.126/07, valid from 01.01.2008.

Stipulate especially:

- Relation between DSO and users;
 - Connection to the distribution grid;
 - Production and consumption of electrical energy to and from DG;
 - Measurement service;
 - Payment of grid usage.
- Relation between DSO and Supplier;
- Relation between supplier and user;

RULES ON THE SYSTEM OPERATION OF THE ELECTRICITY DISTRIBUTION NETWORK

Existing published Off.Gaz. of RS, No.123/2003

Draft stil waiting consensus from agency

Stipulate especially

- technical and other conditions for safe operation of grid in terms of reliable and qualitative supply of electrical energy;
- criteria for planning development of distribution grid;
- technical and other conditions for the grid connection;

COST ALLOCATION FOR RES-E SYSTEM INTEGRATION

- Grid connection at the economically next-best and technically possible grid connection point.
- The RES investors bears the costs of grid connection and becomes owner of the grid connection
- Costs related to part of network which is or becomes property of DSO are grid expansion costs
- Necessary grid extension measures for the connection and reception of the RES-E have to be born by the grid operator

TENDERING OF GRID CONNECTION

- DSO or a competent third party can be charged by the investor with the grid connection work
- DSO is responsible to undertake economically acceptable grid extensions measures if the RES is probably realised
- Operation of measuring device and measuring is in duty of the DSO

TECHNICAL CONDITIONS FOR GRID CONNECTION OF POWER PLANTS

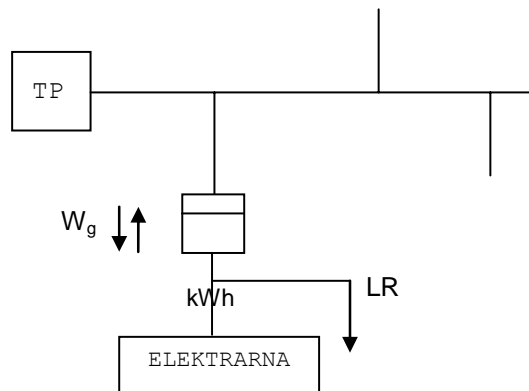
Basic type of connection

Nominal power	Typ of connection			Voltage level of connection		requirements for production of reactive power
	1 phase	2 phase	3 phase	LV (P1, P2)	MW (P3, P4)	
do 3,7 kW	X	X	X	X		A or C
do 7,4 kW		X	X	X		A or C
do 10,0 kW			X	X		A or C
do 250 kW			X	X	X	B, C or D
do 1.000 kW			X	X	X	C or D
do 10.000 kW			X		X	D

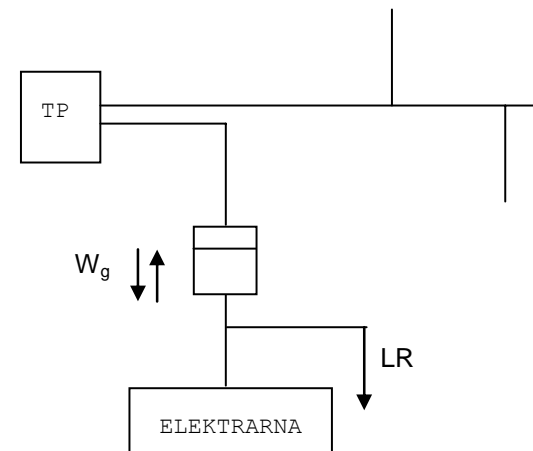
TECHNICAL CONDITIONS FOR GRID CONNECTION OF POWER PLANTS

Low voltage level connection:

LV – P1



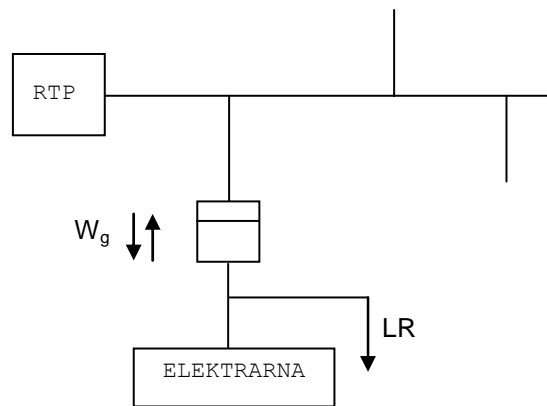
LV TP – P2



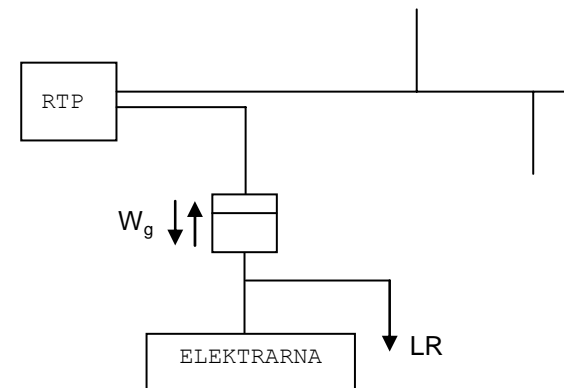
TECHNICAL CONDITIONS FOR GRID CONNECTION OF POWER PLANTS

Medium voltage level connection:

MV – P3

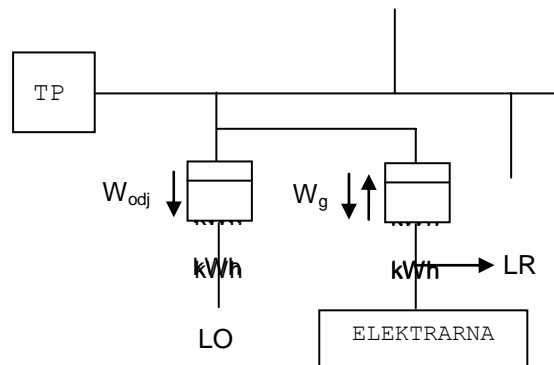


MV RTP – P4

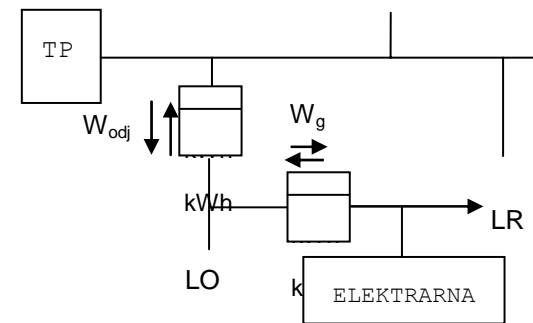


TECHNICAL CONDITIONS FOR GRID CONNECTION OF POWER PLANTS

Connection in case of production and consumption at same location



Odjemalec in $S_g \leq 0,8 * S_{odj}$



CONCLUSION

Large scale integration of RES-E into distribution grids requires:

- More investments into existing grids
- Fully acceptance of DSO investments and costs driven by integration of RES-E by regulation authority (incentives to invest)

Thank you for your attention!



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