

## Proposal for the creation of a regional working group

<b>SEERC RWG - 04</b>	<p><b>Name of Convenor:</b> Yuriy Bondarenko (Ukraine)  <b>E-mail address:</b> ynb@ukr.net, cigre@ukr.net</p>
<p><b>Technical Issues:</b>  The development and installation of energy storage systems and its impact on the power system development and operation</p>	<p><b>Strategic Directions:</b>  Making the best use of the existing system</p>
<p><b>The WG applies to field of system distributed generation and real-time system operation activities (SC C6)</b></p>	
<p><b>Title of the WG:</b>  <b>“Technical and economical features of Hydro Pumped storage power plants (HPSPPs) in power systems”</b></p>	
<p><b>Scope, deliverables and proposed time schedule of the Group :</b></p> <p><b>Background :</b>  Hydroelectric pumped storage power plant uses in its work either set of generators and pumps or reversible hydro power generating sets, which are able to work not only in the generator mode but also in the pumping mode. Experience of the usage of the HPSPP for purposes to regulation electrical modes shows that they are not only generate source, but also the source of the rendering ancillary services, which contribute as to optimization of the daily load curve and reliability growth and supply quality. The capability of the HPSPP to expend extra energy at night and return it to electric energy system at the time of the largest consumption makes them an efficient tool for aligning the electricity grid capacity.</p> <p>The changing of the structure of the generation capacities takes place in power system, beyond traditional: nuclear, thermal and hydro; solar and wind generation increases, which requires the new sources of the regulation power.</p> <p>Nowadays, in SEERC’s power systems some HPSPPs are in operation, and some are being built. In Ukraine - Dniester PSP at the designed capacity will be the largest pumped storage station in Europe and the sixth-scale hydropower project in the world. Energy complex of Dniester PSP consists of seven hydroelectric units (electrical capacity is 2268 MW in generating mode and 2947 MW in pump mode) and will be commissioned in several launchers.</p> <p>HPSPPs which work in the world: Bath County Pumped Storage Station (United States) with installed capacity of 3003 MW; Huizhou Pumped Storage Power Station (China) – 2448 MW; Guangdong Pumped Storage Power Station (China) – 2400 MW; Okutataragi Pumped Storage Power Station (Japan) – 1932 MW; and etc.</p> <p>Scope of this WG is to prepare general recommendations about HPSPPs in power systems.</p>	



**Scope :**

1. Basic characteristics of functioning HPSPPs which work in the electric energy system in the countries of south east European region;
2. The basic issues, which are solved by HPSPPs in the electric energy system;
3. Participation of HPSPPs in generation, control of power and optimization of the daily load curve;
4. Work of HPSPPs in the electric energy system with nuclear, wind and solar power plants;
5. Automation of the control processes of HPSPPs and SCADA power system;
6. Economic aspects of attraction HPSPPs to optimization of the daily load curve of the electric energy system;
7. Regional particularities;
8. Report.

**Deliverables :**

Technical brochure

**Time Schedule:** February 2015

**Final report:** August 2016

**Approval by Technical Committee Chairman:**

**Mark Waldron**, chairman of TC CIGRE announced that this WG will be discussed at the next TC meeting as option of International CIGRE WG proposed by the SEERC.

**Date:**

**Prepared by Yuri Bondarenko  
November, 2014**