IEEE/PES Transformers Committee
Spring 2008 Meeting
Charlotte, North Carolina

"US National Energy Policy"

-- Technical Presentation --
Tuesday, March 18, 4:45-6:00 pm

by Phil Hopkinson and Nigel McQuin

1. Abstract

The United States has wrestled with an Energy Policy for several decades and has had difficulty agreeing on comprehensive and coherent objectives. The 2001 "Bush-Cheney Report" focused heavily on the need for new energy supplies and the infrastructure, with hints at the need for energy efficiency. Energy self-sufficiency was a dream but rising energy prices were a reality. The policy report laid out proposed actions to boost supplies, stabilize markets, and address future growth. This presentation looks closely at the plan and current state to better understand how important the recommendations remain today.

During this presentation, it is hoped that the audience will be able to influence others of the importance of this message and to quickly push for adoption of the principals in the 2001 plan. We will review our current energy consumption and understand how it is supplied. We will also review the Department of Energy's forecast for future energy needs and understand options that may be able to meet them. Also presented will be the Energy Policy Statement published by the IEEE Power Engineering Society in the spring of 2007 which compliments the National Report. You will also be presented with environmental issues and have a chance to consider some of the issues about the Global Climate Change debate.

2. Learning Objectives

The tutorial will provide:

- Overview of National Energy Policy Report of 2001.
- The relevance of the Energy Policy Act of 2007 on automotive fuel economy.
- Understanding of the US energy picture; demand, supplies and growth projections.
- View of options to rid the country of the need for foreign oil.
- Examination of the importance for electricity and the need for rapid expansion.
- Options and economic factors for new electric generation.
- Close look at the environment and recognition that a balanced plan is necessary.
- Call for action to proceed towards Energy Independence!
- Chronology of climate change research.
- The development of climate change legislation/taxation burden.

3. Learning Outcomes

As a result of attending of this tutorial session members will gain:

- An understanding of the relevance of the 2001 Energy Policy Report and of the 2007 Energy Policy Act on automotive fuel economy.
- A clear picture of what it means to become Energy Independent.
- A view of the enormity of new generation that must be built quickly in the United States.
- Realization that we cannot shut down our viable generation capacity in spite of impacts on greenhouse gases.
- A clearer picture of Global Climate Change.

4. Presenter's Biographies

Nigel McQuin: Mr. McQuin gained a First Class Honors Degree in Electrical Engineering from Imperial College, London, England in 1977, specializing in electrical power systems and rotating machinery. He also holds minor qualifications in geology and paleontology. He joined GEC Large Machines Co. (later Alstom, now Converteam Inc.) as a Development Engineer, where he worked on the design and analysis of a wide variety of electrical machines and drive systems. He later joined Brush Electrical Machines Co., then as development manager.

In June 1990, Nigel moved to the USA, where he became Vice President and Test Laboratory Manager at PSM High Power Test Laboratory in East Pittsburgh, PA. Since December 1996, he has been self-employed as an independent Electrical Power Consultant, covering diverse projects in high-power electrical testing, design reviews, forensic expert witness services, and electric vehicle drive designs. One testimony to his drive motor skills is the land-speed-record electric cars that have achieved over 300 mph on the Bonneville Speedway on the Utah Salt Flats.

Nigel has been chairman of STLNA (Short-Circuit Testing Liaison - North America), a coordinating body for the high power electrical test laboratories within NAFTA. He also serves on the IEEE standards committees for Switchgear (C37), Transformers (C57), Surge Protection Devices (C62), Electrical Machinery (C50) and High Voltage Testing Techniques (PSIM). He has been a technical liaison contributor to the US National Committee for IEC TC17A/C (switchgear) and TC14 (transformers), and has served in previous years with TC42 (HV testing techniques) and TC37 (surge protection devices). He is an Individual Member of CIGRE (Paris), and is also a Member of the IET (London). Locally he contributes to the IEEE Pittsburgh Chapter by providing technical presentations each year, and was awarded the IEEE-PES 2006 Outstanding Engineer Award.

Phil Hopkinson: Mr. Hopkinson is a long service Transformer Engineer and his career path includes managerial and engineering assignments at General Electric, Cooper Power Systems and Square D/Schneider Electric in distribution, medium power and large power transformers of liquid, dry and cast resin constructions of all voltage classes.

In 2001, Phil formed a power transformer consulting company, called HVOLT Inc. and since 2002 has managed HVOLT full time. He currently holds 15 US patents, is a Registered Professional Engineer in North Carolina, and is Technical Advisor (TA) to the US National Committee for IEC TC14 for Power Transformers. He has authored IEEE Transactions papers on the effects of DBPC in Transformer Oil, on Low Voltage surge phenomena in Distribution Transformer windings, and a panel session on Natural Ester Fluids at the 2006 IEEE Transmission and Distribution Meeting and has Chaired NEMA's activities and was primary author of NEMA TP-1 Guide for Energy Efficiency for Distribution Transformers. He has conducted seminars on Circuit Breaker Switching and Transformer Interaction at the IEEE Transformers Committee in 2003 and at the Doble International Conference in 2006 and at the IEEE Transformers Committee in 2007. He has chaired numerous IEEE and NEMA Working Groups and from 2001-2006 has served as Chairman of IEEE's Policy Development Coordinating Committee from 2001-2004 and continues on the executive board where the PES Energy Policy was written and approved by the Board of Governors in 2007. Energy Policy and Environmental impacts have been a 30-year curiosity of Phil's and he continues to immerse himself in issues at all levels.

Phil received his BS from Worcester Polytechnic Institute in 1966. He is a C-Course graduate of GE's Advanced Engineering Program and received his MS degree in System Science from Brooklyn Polytechnic institute in 1970, where his Masters Thesis was on Impulse Voltage Distribution in transformer windings.