



## Horizon Technologies Inc.

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### ***PARTIAL LIST OF CONTRACTS AND PROJECTS***

- ◆ **Natural Resources Canada** contracted Ludo Bertsch to develop a methodology for the development of a Standards Catalogue (including standards from NIST, IEC, ISO, IEEE, consortiums) for the Canadian National Committee of the IEC Task Force on Smart Grid Technology and Standards Working Group 1.
- ◆ **Solar Colwood**, a federally sponsored municipal-driven energy efficiency project sponsored by the Federal Government, chose Horizon Technologies as the Smart Home/Smart Grid technology architect and designer.
- ◆ **Energy Solutions for Vancouver Island Society** contracted Ludo Bertsch to act as an Intervenor in BC Hydro/BCUC proceedings for long term Integrated Energy Plan, shorter term Revenue Requirements Application and the Residential Time-of-Use Pilot project, plus BCTC/BCUC capital plan proceedings. Mr. Bertsch also participated in the Net Metering, Advanced Meters and Rate Design Application processes; plus Time-of-Use and Rates Working groups. Mr. Bertsch also represented the **Okanagan Environmental Industry Alliance** for FortisBC/BCUC proceedings.
- ◆ **National Research Council** contracted Horizon Technologies to install and supply an occupancy simulation and meter reading system for the Research Houses in the Canadian Centre for Housing Technology in Ottawa. The system controlled lights, showers, heating system and other appliances to simulate a controlled, yet realistic operation of the houses. The datalogging aspect captured hourly information from the electrical, water and gas meters.
- ◆ Horizon developed energy-efficient sustainable strategies for **The Trust for Sustainable Development** in the multi-family residential/commercial Shoal Point building along the Victoria Harbour waterfront, with plans to use heat pump technology. Horizon coordinated **NRCan's** C-2000/CBIP and **CMHC's** Ideas Challenge participation, energy simulations and reports. Implemented energy monitoring system of building-wide water-based HVAC system.
- ◆ Horizon developed prototypes and field trial systems for a networked LCD user-interface display sponsored by **Natural Resources Canada**. The Panel for Energy Research and Development (**PERD**) aimed to modify consumer behavior and reduce energy usage through useful information displays directly to the consumer (e.g. filters to be changed).
- ◆ Horizon Technologies was the system integrator for home automation systems in both the BC and Hamilton Advanced Houses projects. The **Advanced Houses Program**, part of the federal government's Green Plan, is initiated by **Natural Resources Canada** (NRCan) in cooperation with the **Canadian Home Builders' Association**. The program furthered the energy efficiencies in the **R-2000 Program**. Following these activities, NRCan granted contracts to develop and supply automatic free-air cooling in the BC Advanced House

- ◆ **Public Works Canada** commissioned Ludo Bertsch to position the CAB (Canadian Automated Building) protocol as a Canadian position to the international Home and Building automation activities, IEC/ISO JTC1 SC25 WG1.
- ◆ Horizon co-developed a comprehensive technical study for **CABA**, manufacturers, utilities, **Nav Canada** and **Industry Canada** to analyze the potential for RF interference to aircraft from the cumulative effects of powerline network communication systems.
- ◆ Horizon Technologies participated in **Industry Canada's** and **IEEE's** efforts to develop standards for intelligent meters.
- ◆ Horizon Technologies analyzed the demographics, technical feasibility and strategies of a home-networked product for a large utility company.
- ◆ **Johnson Controls** commissioned Horizon Technologies to determine ramifications on HVAC product lines due to changes in the CEBus home automation standard, and customized its own modules to enable another large HVAC manufacturer's equipment to interoperate with other products using CEBus communication over AC powerlines for an electric utility trial.
- ◆ Ludo Bertsch was the chair for meetings and conference calls, and developed interoperability strategies for the Standards Committee of **CABA**, Continental Automated Buildings Association.
- ◆ Horizon Technologies worked with **BC Hydro, BC Tel, BC Gas, Ontario Hydro, Johnson Controls, SONY, Leviton, GE/CAMCO** and **Randor** to provide automation solutions and provide integration between the products.
- ◆ **Indianapolis Power & Light Company** and **Hometronics** commissioned Horizon Technologies to showcase a complete CEBus home automation integrated system for a network of televisions, VCR, video camera, HVAC, drapes and other appliances.
- ◆ Among its contributions to the **Electronic Industry Association**, Horizon Technologies developed powerline testing for verification of the spread spectrum performance on the powerline and pioneered the application layer development.
- ◆ **SONY** sponsored Horizon Technologies to provide on-screen TV feedback, allowing users to control other products. Horizon has since developed a stand-alone graphical TV interface (GATV) to work with any TV set.
- ◆ Horizon Technologies developed a hybrid-CEBus spread spectrum powerline module and vigorous performance tests on Horizon's powerline test bed, and developed & produced intelligent control panel systems for sophisticated ice-blasting machines.
- ◆ **AISI** contracted Horizon Technologies the design, simulation and production of the first custom ASICs for CEBus, plus multi-manufacturer control systems.
- ◆ Horizon Technologies developed and maintained a variety of Oracle database system programs for British Columbia's **Ministry of Education, Attorney General, Ministry of Forests, and Office of the Ombudsman**.