

**An Advanced Instrument for Rapid Measurement of Soil Compaction, Phase 1 (NYSERDA 4731-ERTER-TR-98 )** – This project was TransTech Systems’ first attempt at determining the technical feasibility of adapting its electrical impedance-based technology, from the successful PQI™, to the measurement of soil compaction. While not resulting in a commercial product, this was an extremely valuable learning experience for the engineering staff. Based on the testing done, it was determined that the electrical impedance technology could be used for soil density measurement, but that the occasional presence of ionic salts, as well as the presence of both free and bound water, were extremely complicating factors. Armed with this knowledge, TransTech is currently working on a new Phase I program to develop an in-process soil compaction measurement instrument. This extremely innovative program, currently funded by NYSERDA, NGA (formerly NYGAS) and TransTech, is utilizing a multi-frequency, electrical impedance spectroscopy approach designed to differentiate between the combined effects of the problematic presence of ions, free water and bound water, resulting in an accurate compaction and moisture measurement.