Title:	Assessing Ozone Impacts on Electric Vehicle (EV) Adoption in Texas
The Problem:	As electric vehicle (EV) adoption continues to increase, there are unanswered questions about impacts on ozone levels in ozone nonattainment areas in Texas. While EVs offer zero tailpipe emissions, skeptics raise concerns that increased load on the electrical grid will increase power plant emissions. National resources show that on a well-to-wheels basis, EVs are cleaner than conventional vehicles; however, studies that include photochemical modeling to assess ozone impacts have not been completed. This affects future transportation conformity determinations and state implementation plan revisions, and therefore TxDOT's ability to plan future transportation projects.
Technical Objectives:	The researchers shall perform a photochemical modeling analysis that includes Texas-specific grid information to evaluate potential future impacts on ozone levels for at least one and up to three Texas ozone nonattainment areas, and surrounding rural areas based on different levels of EV adoption and its potential impact on fossil fuel electric demand. Forecast years should be based on future ozone attainment years; e.g., 2023 and 2026. The expectation of this project is that the end product will obtain a TRL level 7.
Desired Deliverables:	1. Technical memorandum for each task completed. 2. Monthly progress reports. 3. Value of Research (VoR) that includes both qualitative and economic benefits, to be included in the final research report. 4. Research report documenting the findings of the research, including ozone impacts in parts per billion (ppb) for at least one and up to three ozone nonattainment areas and surrounding rural areas, for various future levels of EV adoption at key future attainment deadlines and any associated changes that would result in fossil fuel electric demand and associated emissions. The research report shall disclose: 　a. The use of EPA and TCEQ acceptable analysis methodology. 　b. Data inputs. 　c. Analysis assumptions. 　d. Level of EV adoption scenarios. 　e. Level of electric demand for EV adoption scenarios. 　f. Grid size for modeling resolution results. 　g. Temporal profile for EV charging. 　h. Forecast years and dates. 　i. The use of any TCEQ or EPA modeling data and files; e.g., modeling for air quality planning activities such as SIP development or any other near-term EPA or TCEQ planned modeling activities. 5. Project Summary Report.
Proposal Requirements:	1. Utilize the "Proj/Agre" and "PA_Form" templates located at the TxDOT RTI website. 2. Proposals will be considered non-responsive and will not be accepted for technical evaluation if they are not received by the deadline or do not meet the requirements stated in RTI's University Handbook, which is also located at the RTI website. 3. Proposals should be submitted in PDF format, 1 PDF file per proposal. File name should include project name and university abbreviation. 4. This project will be tracked during the life of the project using a Technology Readiness Level (TRL) scale. For more information about the use of a TRL, click.