CHAPTER OVERVIEW

10: Electrochemistry

Physical Chemistry: Thermodynamics
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Elon Musk, an innovator in the field of harnessing renewable sources to generate electric power see a huge potential for electric cars to change the way Americans drive.

> - *Selling an electric sports car creates an opportunity to fundamentally change the way America drives.- Elon Musk*
> - *I've actually made a prediction that within 30 years a majority of new cars made in the United States will be electric. And I don't mean hybrid, I mean fully electric.- Elon Musk*

Given the importance of energy production (and in particular, production from renewable sources) alluded to by Richard Smalley in his address to the United States Congress (see Chapter 1), Elon Musk's vision seems well-aligned with Smalley's priority. The generation and consumption of electrical energy and how it is harnessed to do work in the universe lends itself very nicely to discussion within the framework of thermodynamics. In this chapter, we will use some of the tills we have developed to relate electrochemical processes to thermodynamic variables, and to frame discussions of a few important topics.