Electrochemistry is occasionally praised as an environmentally benign method of chemical synthesis since it is based on the electron as a clean reagent. Is electrochemistry a suitable green method or are other colours involved? Two examples are discussed as compared to alternative detrimental routes:

1 Oxidation with reduced oxygen (1).
Oxidation with reduced oxygen provides an example whereby a compound used for medication probenecid typically contains a carboxylic function to assist water solubility. Reported preparations have involved substitution of benzoates with adverse reagents. The oxidation of toluene derivatives by electro-reduced oxygen provides a benign procedure.

2 Ruthenium based electro-catalytic aromatic oxidation (2,3).
Substitution of aggressive oxidation (as in chromic acid or high-pressure cobalt catalyzed procedures) by indirect electrolysis offers green opportunities.

Further significant incentives include: high safety, nullifying the need of high pressures and temperature, reducing the risk of runaway reactions and excellent on-off control. Another advantage is the suitability for designing flow processes instead of batch procedures.
The vicious circle, -even in successful electrosynthesis, is the high value of the Faraday constant, considerable energy cost in low voltage DC transfers, and effluent treatment of electrolyte solutions.

All considered, possible candidates for electrochemical green processes should perhaps be based on solar energized, slow-rate continuous reactions.