This paper considers future distribution networks featuring inverter-interfaced photovoltaic (PV) systems, and addresses the synthesis of feedback controllers that seek real- and reactive-power inverter setpoints corresponding to AC optimal power flow (OPF) solutions. The objective is to bridge the temporal gap between long-term system optimization and real-time inverter control, and enable seamless PV-owner participation without compromising system efficiency and stability. The design of the controllers is grounded on a dual ε-subgradient method, while semidefinite programming relaxations are advocated to bypass the non-convexity of AC OPF formulations. Global convergence of inverter output powers is analytically established for diminishing stepsize rules for cases where: i) computational limits dictate asynchronous updates of the controller signals, and ii) inverter reference inputs may be updated at a faster rate than the power-output settling time.