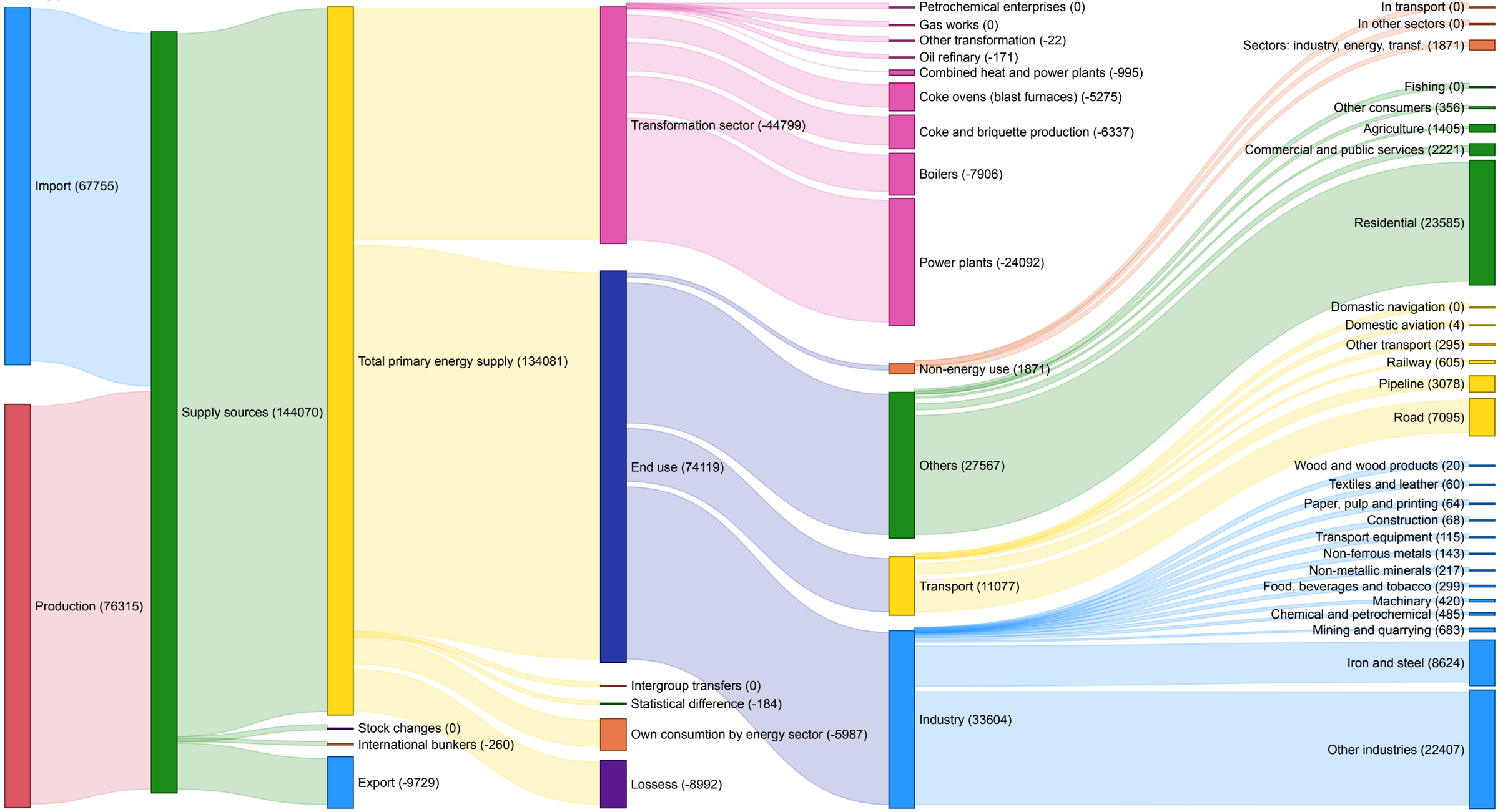**Energy flows**, th. toe, 2001