

ABSTRACT

ROOF BASED ENERGY CONVERSION SYSTEM

5 A roof based energy conversion system 10 for a building 12
with a roof 13 comprises a roof frame structure 14 and a
plurality of solar energy converting tile assemblies. The
solar energy converting tile assemblies may comprise a
selection of photovoltaic tile assemblies 100 that convert
10 solar energy into electrical energy and thermal tile
assemblies that convert solar energy to thermal energy.
Both tile assemblies have substantially the same exterior
appearance so as to be visually indistinguishable when
laid together on the same roof structure 14. The energy
15 conversion system 10 may also incorporate a hydroelectric
system 200 that is configured to convert kinetic energy
from rain running off the roof structure 14 to electrical
energy and a wind energy conversion system 300 that
converts kinetic energy of moving air into electrical
20 energy. An energy management system 20 may be provided
that receives electrical energy from the tiles 100, the
hydroelectric system 200, and the wind energy conversion
system 300. The management system incorporates batteries
and includes a connection system 30 to enable energy
25 produced by the system 10 to be transferred to a supply
grid.

Figure 1