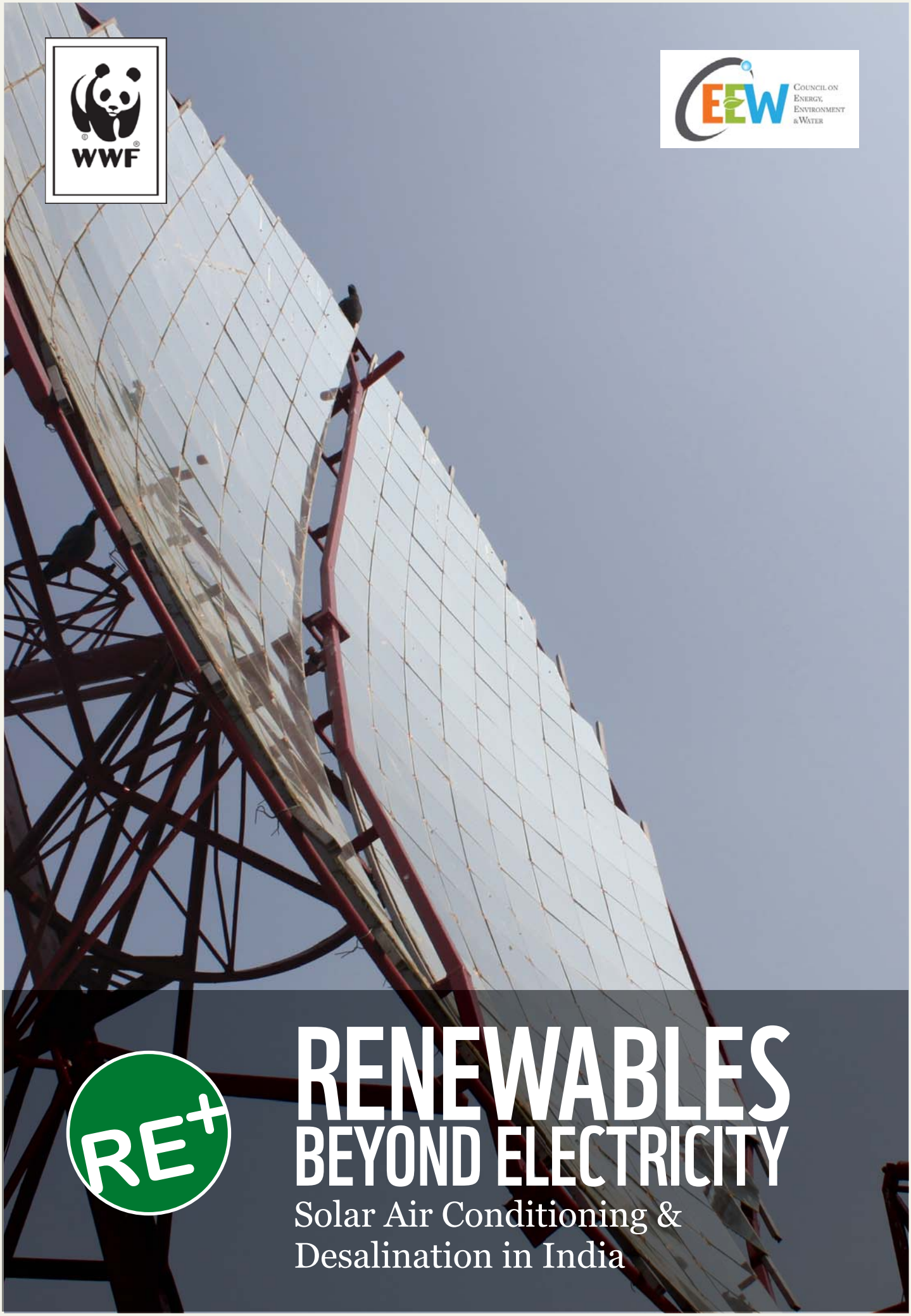

RENEWABLES BEYOND ELECTRICITY

Solar Air Conditioning & Desalination in India

Brief description of solar thermal desalination technologies available in the Indian market

(a) Linear Fresnel Reflector based Hybrid CSP Demonstration Plant in Ramanathapuram

The first in the country: In October 2012, KG Design Services (KGDS) together with Empereal Inc. and the National Institute of Ocean Technology (NIOT) commissioned India's first CSP-powered desalination plant using Linear Fresnel technology in Ramanathapuram district of Tamil Nadu (see figure 3.5). Discussions with both KGDS and DST suggest that the plant is designed to generate both power and desalinated power. The CSP plant is integrated with biomass which makes it run round-the-clock thus producing electricity and potable water for around 7,500 residents in the village of Narippaiyur, Ramanathapuram.

KGDS and Empereal Inc. consider Linear Fresnel technology suitable for solar thermal applications like desalination, especially in the Asian and Indian context due to factors such as: simple and reliable system because of the single axis tracking of reflectors and fixed receivers; cost-effectiveness and land-efficiency. These advantages drive the selection of Linear Fresnel technology for applications ranging in output temperature from 110˚C to 450˚C (Muirhead, 2012).[13] The plant produces desalinated water at the rate of 6,000 L/hour reducing salinity from 26,000 ppm to 2 ppm. The seawater is sprinkled onto the series of tubes inside the MED-thermo vapour compressor (TVC) system where the steam produced by the LFR runs through the series of tubes and converts seawater into vapours which is then condensed, cooled and re-mineralized for consumption.

FIGURE 3.5

CSP-MED Seawater Desalination Plant in Ramanathapuram District of Tamil Nadu, Based on Linear Fresnel CSP Technology

Source: Muirhead, 2012

© CSP Today

(b) ***ARUN concentrator:*** During the course of this study it has been found that manufacturers of Scheffler dish and ARUN concentrator in India are trying to make

13 http://social.csptoday.com/emerging-markets/executive-viewpoint-manoj-divakaran-president-coo-empereal-inc#sthash.nHIKTony.dpuf