

LPG

THE PERFECT PARTNER FOR
RENEWABLE ENERGY
IN POWER GENERATION SYSTEMS



LPG
EXCEPTIONAL
ENERGY


WORLD LPG ASSOCIATION
www.wlpga.org




WLPGA

LPG AND RENEWABLE ENERGY: NATURAL PARTNERS IN POWER GENERATION


LPG & POWER GENERATION




LOW CO₂ EMISSIONS



CLOSE TO ZERO PARTICULATE MATTER EMISSIONS



QUIET OPERATION



LOW NO_x & SO_x

CHALLENGES FOR POWER GENERATION USING RENEWABLE ENERGY SOURCES



HIGH CAPITAL COST



INTERMITTENT POWER PRODUCTION



DISTRIBUTION CHALLENGES



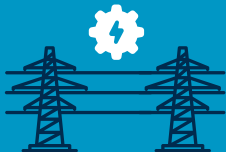
GENERATION PATTERNS
THAT ARE OFTEN MISALIGNED TO THE MARKET'S NEEDS

DISTRIBUTED POWER SUPPLY IS BECOMING INCREASINGLY POPULAR AS AN ALTERNATIVE TO TRADITIONAL GRID SYSTEMS

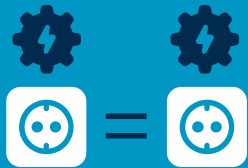
HYBRID SYSTEMS CAN:



PROVIDE ON-SITE POWER



EASE THE STRAIN
ON EXISTING CENTRALISED POWER GRID



REDUCE INEFFICIENCIES
DUE TO TRANSMISSION LOSSES



HYBRID SYSTEMS CAN SHARE THE ENERGY LOAD BETWEEN **RENEWABLE ENERGIES AND LOW EMISSION LPG**, BUILDING A BRIDGE TO THE FUTURE

LPG IS RARELY SEEN AS A **FEEDSTOCK FOR POWER GENERATION**, DESPITE



IT'S ABUNDANT SUPPLY



WIDESPREAD INFRASTRUCTURE



ON THE ISLAND OF ST. CROIX AN EXISTING **POWER PLANT WAS CONVERTED TO LPG**



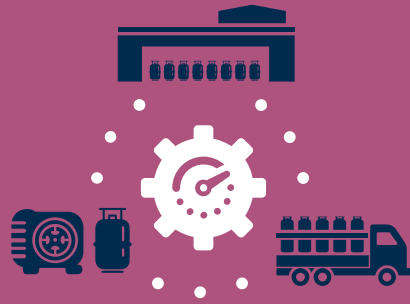
20MW
OF POWER

FUEL COST SAVINGS OF
\$6M
IN THE FIRST TWO YEARS

WHY LPG?

EASY & SAFE HANDLING

PORTABLE, AVAILABLE EVERYWHERE, STORED AT LOW COST AND INDEFINITELY



HIGH EFFICIENCY

LPG IS EASY TO TRANSPORT AND STORE AND BURNS VERY EFFICIENTLY WITH A HEATING VALUE ABOUT

10%

HIGHER THAN OTHER LIQUID FOSSIL FUELS, AND ROUGHLY EQUAL TO THAT OF NATURAL GAS



LOW CARBON & CLEAN BURNING

COMPARED TO OTHER FOSSIL FUELS, LPG IS RELATIVELY LOW CARBON. IT ALSO HAS NO BLACK CARBON (OR PM) EMISSIONS



ABUNDANT SUPPLY

LPG IS OBTAINED FROM THE PRODUCTION OF **NATURAL GAS** AND **CRUDE OIL REFINING** AND CAN BE PRODUCED FROM RENEWABLE SOURCES IN THE FORM OF **BIOLPG**

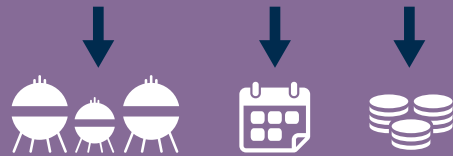
LPG AND POWER GENERATION

LPG IS AN IDEAL FUEL FOR POWER GENERATION, PARTICULARLY IN REMOTE AREAS SUCH AS ISLANDS OR PLACES WHICH ARE NOT CONNECTED TO ENERGY GRIDS



MUCH CLEANER

THAN COMPETING FUELS **SUCH AS HFO**



LOWER INFRASTRUCTURE

REQUIREMENTS, CONSTRUCTION PERIODS AND STORAGE COSTS **THAN LNG**



THERE ARE NO SIGNIFICANT TECHNICAL OR ECONOMIC BARRIERS WITH POWER GENERATION TECHNOLOGIES TO RUN ON LPG

LPG AND RENEWABLE ENERGY FOR POWER GENERATION



LPG CAN PROVIDE

CONSISTENT, STABLE POWER BASELOAD REGARDLESS OF WEATHER CONDITIONS



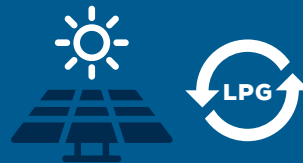
LPG DOES NOT DEGRADE

OVER TIME, IT IS CONSISTENT AND RELIABLE. LPG CAN BE USED AS A **CLEAN BACK-UP ENERGY**



LPG CAN DELIVER

MODERN, LOW EMISSION POWER



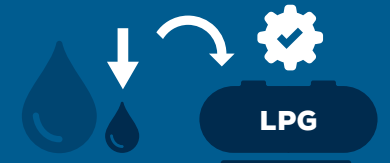
LPG CAN BACK UP COMMERCIAL SOLAR SYSTEMS

WHICH STORE SOLAR-HEATED WATER WITH THERMAL EFFICIENCIES **GREATER THAN 95 %**



HYBRID SYSTEMS

ARE ALREADY ATTRACTING ANNUAL, **GLOBAL INVESTMENT OF MORE THAN \$200 BILLION** AND ARE COMMERCIALY VIABLE TODAY



WITH HYBRIDS

FUEL VOLUMES ARE LOWER AND EXISTING LPG INFRASTRUCTURE CAN OFTEN BE USED - NATURAL GAS/LNG SYSTEMS NEED INFRASTRUCTURE TO BE DEVELOPED, ADDING TO COST

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