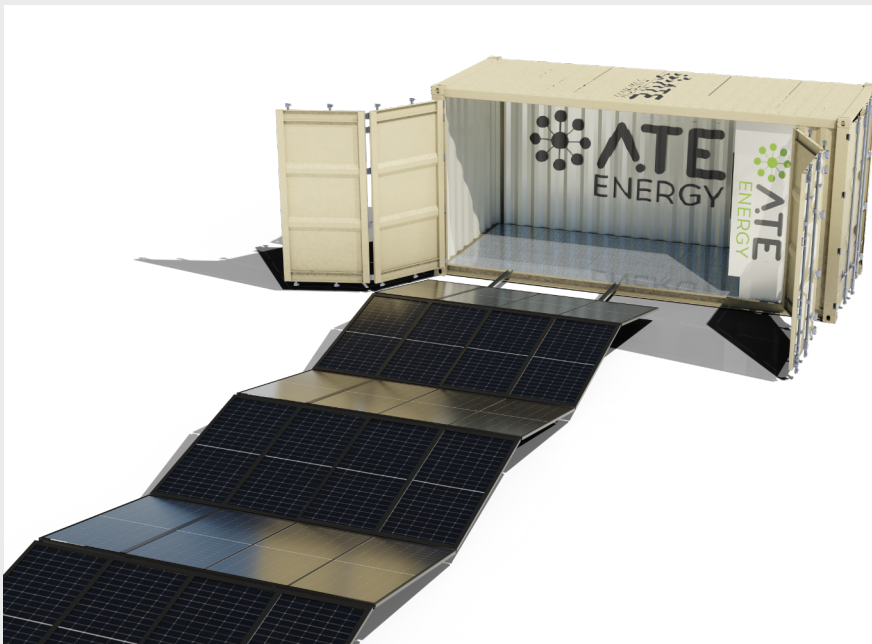


Modular Container Energy Solutions

We have a huge selection of variants to make sure it fits your needs perfectly.



ATE Energy ApS

Nordvej 7-9
DK - 4200 Slagelse
Denmark
Info@ate-energy.dk
Phone: +45 7020 2230

CVR/Company registration
DK39294516

Features and uses

Features

- Adding Renewable Energy to the Energy Supply
- Hedging the Energy Cost
- Back Up Power
- Fuel Saving on Diesel Generators
- Off Grid Operation
- Parallel Operation and Integration
- Distributed Energy Resource (D.E.R.)
- Operation MESH Grid Capability
- Time Shifting
- Trading with the Energy Grid
- Time of Use Optimization
- Peak Shaving
- Load Capacity Shaving
- See last section for detailed description of features

Use For

- Renewable energy supply 24/7 anywhere
- Primary and back up energy supply
- Mission critical infrastructure operations
- Commercial operations
- Farms
- Water pumping stations and waste water treatment
- Residential houses, communities, villages and cities
- Utility scale energy plants
- Peak power plants
- Electrification of areas without infrastructure
- Modular energy plants
- Disaster Relief
- Temporary camps
- Military field deployments
- Mining and exploration
- Harvesting Hydrogen with Electrolyzes and other Hydrogen generation assets

Service Life & Warranties

Service Life:

Container	25 years
PV Solar panels	25 years
Inverter/Charger	15 years
Battery	5000 cycles or 10 years*

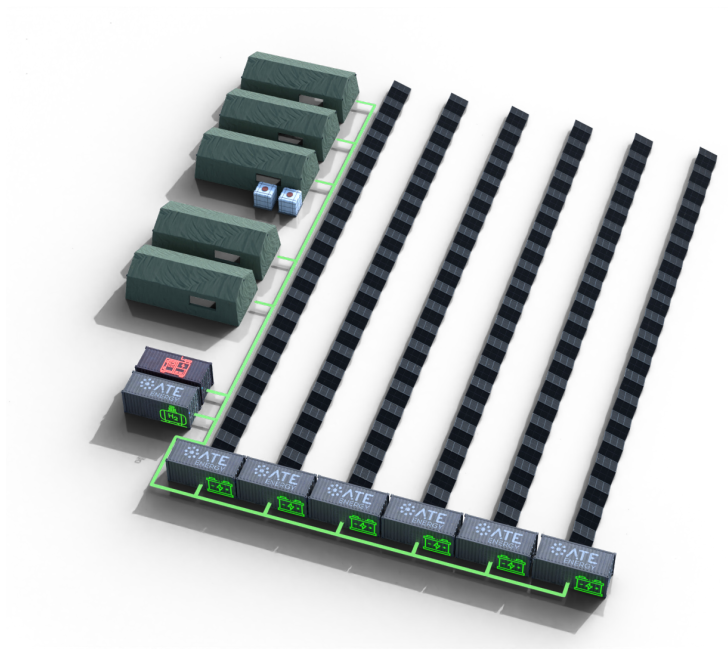
Warranties:

Container	10 years mechanical
PV Solar panels	25 years linear performance
PV Solar panels	10 years mechanical
Inverter/Charger	5 years
Battery	3000 cycles or 3 years*

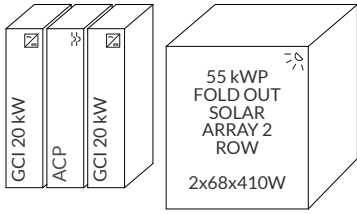
*Whichever comes first

Detailed warranty conditions available upon request

Cluster Deployment



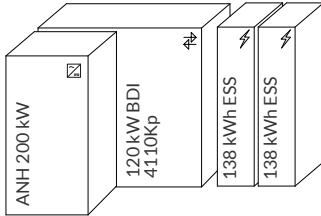
Container Solution Variants



1 #999-280-10-4055

10' Container AC Connect PV 40/55:

- 55 kWp solar PV Capacity
- 2x20 kW PV Inverter (GCI)
- AC Connection Panel (ACP)
- OPTIONAL Direct Diesel Genset Controller



2 #999-277-10-120276

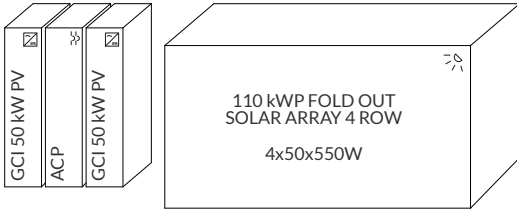
Input Power: 80 kW
Output Power: 120 kW

10' Container ESS 120/276:

- 120 kW Bidirectional Battery Inverter (BDI)
- 276 kWh ESS (251 kWh Usable)
- Fire Detection + Protection
- Climate Control

AC Connection:

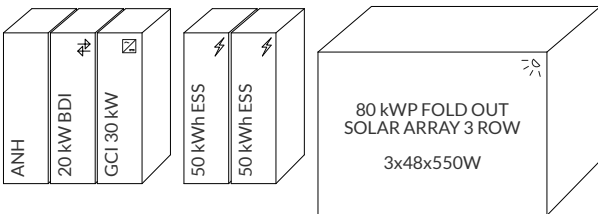
- 2x Diesel Generator (Max 200 kW)
- PV Solar (Max 200 kW)
- Grid Connection
- Parallel connection to more containers



3 #999-280-20-100110

20' Container AC Connect PV 100/110:

- 110 kWp solar PV Capacity
- 2x50 kW PV Inverter (GCI)
- AC Connection Panel (ACP)
- OPTIONAL Direct Diesel Genset Controller



4 #999-277-20-803020100

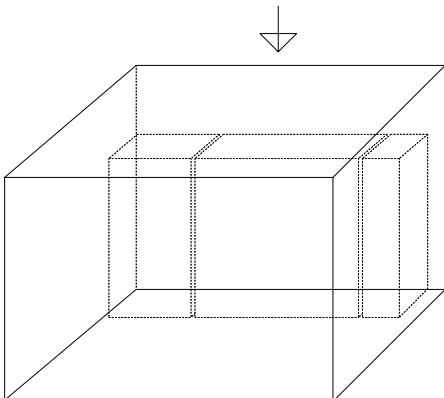
Input Power: 15 kW
Output Power: 20 kW

20' Container PV+ESS 80/50/20/100:

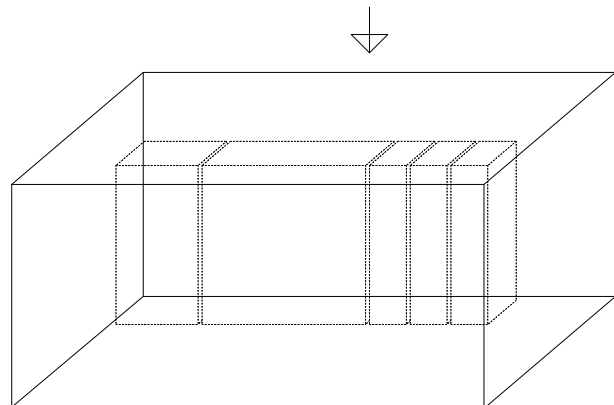
- 80 kWp solar PV Capacity
- 30 kW PV Inverter (GCI)
- 20 kW Bidirectional Battery Inverter (BDI)
- 100 kWh ESS (80 kWh Usable)
- 40 kW DC Solar Charge Controller(SCC)
- Fire Detection + Protection
- Climate Control

AC Connection:

- 2x Diesel Generators (Max 60 kW)
- Grid Connection
- Parallel connection to more containers

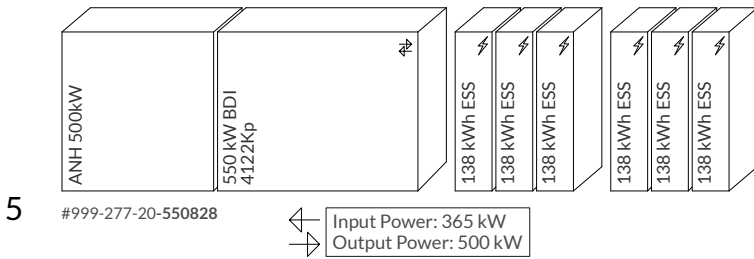


Standard 10' insulated shipping Container



Standard 20' insulated shipping Container

Container Solution Variants

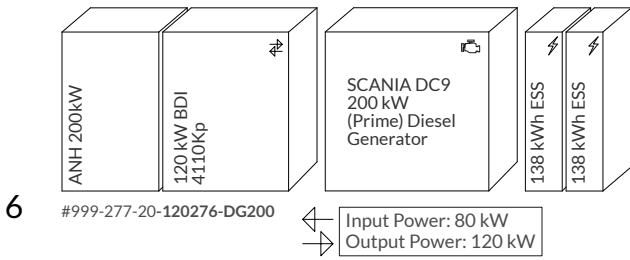


20' Container ESS 550/828:

- 550 kW Bidirectional Inverter (BDI)
- 828 kWh ESS (662 kWh Usable)
- Fire Detection + Protection
- Climate Control

AC Connection:

- 2x Diesel Generators (Max 1000 kW)
- PV Solar (Max 400 kW)
- Grid Connection
- Parallel connection to more containers

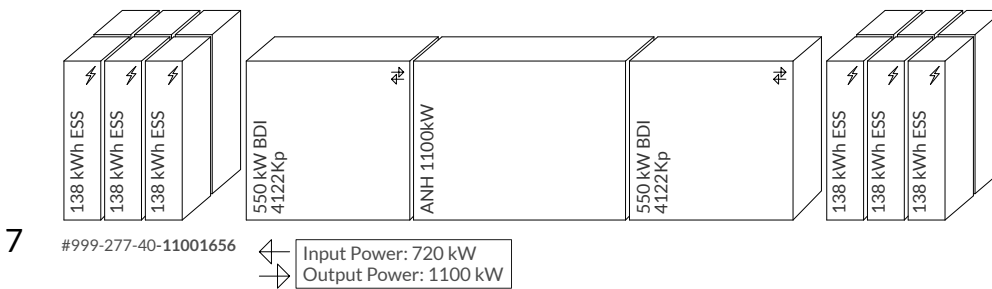


20' Container ESS 120/552/400

- 120 kW Bidirectional Inverter (BDI)
- 276 kWh ESS (221 kWh Usable)
- 200 kW Diesel Generator
- Fire Detection + Protection
- Climate Control

AC Connection:

- PV Solar (Max 200 kW)
- Grid Connection
- Parallel connection to more containers

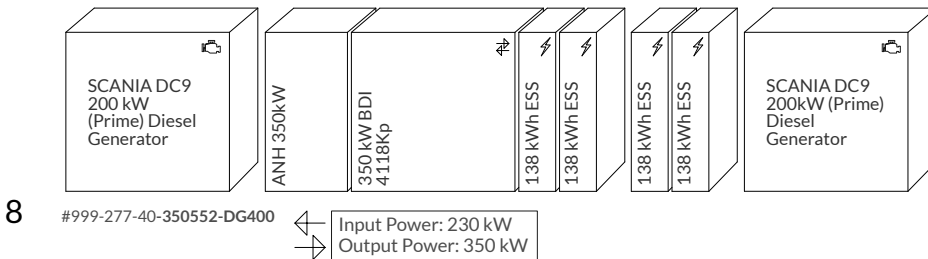


40' Container ESS 1100/1656:

- 1100 kW Bidirectional Inverter (BDI)
- 1656 kWh ESS (1324 kWh Usable)
- Internal Redundant dual ESS System
- Fire Detection + Protection
- Climate Control

AC Connection:

- 2x Diesel Generators (Max 2000 kW)
- PV Solar (Max 1000 kW)
- Grid Connection
- Parallel connection to more containers

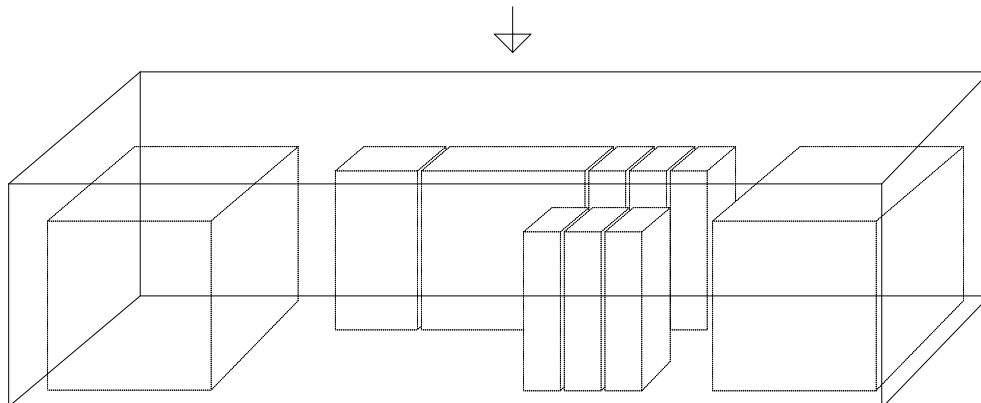


40' Container ESS 350/552/400:

- 350 kW Bidirectional Inverter (BDI)
- 552 kWh ESS (754 kWh Usable)
- 2x 200 kW Diesel Generator
- Fire Detection + Protection
- Climate Control

AC Connection:

- PV Solar (Max 400 kW)
- Grid Connection
- Parallel connection to more containers

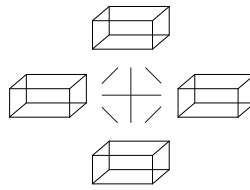


Standard 40' insulated shipping Container



Our Lithium Batteries Explained

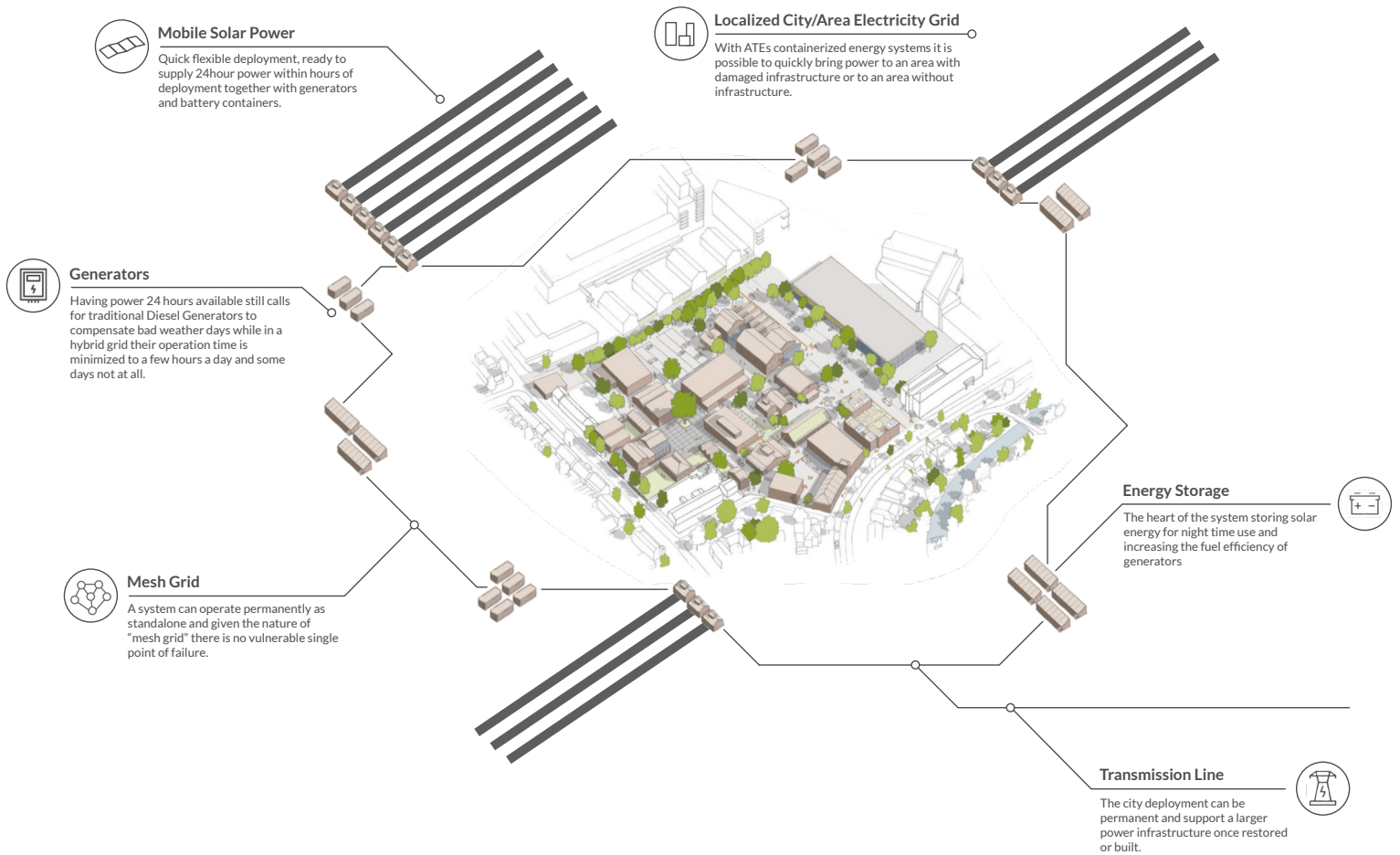
- Service Life is 5.000 Cycles
- Roundtrip Efficiency is 92%
- 80% of its capacity can be used
- Can charge/discharge in 60 minutes



Paralle Connection to other Containers Explained

The ANH component make it possible to connect all the containers in a mesh grid and eliminates a single point of failure, much like a Local Area Network (LAN) with power.

Example of field deployment



ATE Energy container series features explained

Adding Renewable Energy to the Energy Supply

By adding an own renewable energy source to a facility's energy supply our system will save both money and CO emissions in the balance sheets. The internal "cost" or producing own energy from renewable sources outcompetes the cost from most energy grids around the world, in some cases the cost of self produced renewable energy can be more than 10 times cheaper than acquiring energy from the energy grid. The value of CO2 savings is vastly increasing as new market trends and political decisions demands them.

Hedging the Energy Cost

Investing in or leasing a renewable energy system means that a percentage of the annual energy bill will now come as a hedged and fixed cost, a renewable energy system based on solar, hydro or wind does not have any consumables, which could suffer market demand increases, as such only the initial investment or lease cost is depreciated over its service life and only adding small annual maintenance cost. This is also referred to as Levelized Cost of Energy (LCOE) which is now a hedged variable in the balance sheets where the only variable will be how much energy is produced and used.

$$\text{LCOE} = \frac{\text{CapEx, OpEx \& Maintenance cost of generation and storage assets over the entire service life}}{\text{The amount of USABLE energy the assets provides over the entire service life}} = \$/\text{kWh}$$

Back Up Power

Our systems primary function is to add renewable energy to a facility and save annual cost. A secondary benefit is to have it as a first back up source which can operate in case of black out from the grid and in term minimizing and controlling if a secondary back up source such as a diesel generator or fuel cell should be brought online.

Fuel Saving on Diesel Generators

If a facility operates solely or frequently on diesel generators our system will primarily displace fuel usage by adding a renewable energy source. With energy storage included the secondary benefit comes from saving fuel by minimizing the hours diesel generators needs to run and when they need to run, they can be operated with optimized fuel efficiency typically increasing the fuel to energy conversion efficiency by 30-50% and reduction from 24 hours to 2-4 hours diesel operation decrease O&M cost and vastly extends the service life of the generators.

Off Grid Operation

This system can operate completely independently and supply energy direct from the sun at daytime and from the energy storage at night time. In a location where there ALWAYS MUST be power the system can work with back up power, like 2 units of diesel generators OR 2 units of Fuelcells OR 1 diesel generator and 1 Fuelcell depending on the need for redundancy and green policies

Parallel Operation and Integration

A single container unit can be expanded in capacity by adding more containers to meet any size of power demand. 1 or more containers can be interconnected with existing energy infrastructure and/or interconnect with additional new energy sources such as wind turbines, biomass boilers and hydro power facilities

Distributed Energy Resource (D.E.R.) Operation and MESH Grid Capability

The systems Artificial Intelligence opens the opportunity to have multiple units scattered over a larger area to power an entire village, city region, island or even a whole country. The basic principle is to produce energy right where it is needed, while maintaining the safety of supply by having all systems connected to each other and operate as complete energy grid. If the systems have individual owners and many consumers automated Blockchain ledgers will record who made the energy and who used it for billing purposes

Time Shifting

Save energy produced in daytime for use at night, typically from a solar source which has a very high production mid day, but no production at night. Our system stores the surplus energy from mid day to use at night.

Trading with the Energy Grid/Time of Use Optimization/Peak Shaving

Energy markets are in many places billed by different cost over the hours of the day, typically pricing can be 5 times more at “peak hours” than “off peak hours”, this system can be programmed to optimize when stored energy is used either at specific times or when the market price is at its highest, it can even be programmed to BUY energy from the energy grid when the cost is low and use or even SELL when the cost is high – this can mean significant economic value over a year.

Load Capacity Shaving

In many energy markets an industrial user is billed for an “Availability” of energy or the size of the connection capacity to the energy grid. A production facility may from time to time need to start up big machines which draws a lot of energy for short periods of time while its normal operation demand is far less. In market where such capacity billing is in place our system can be programmed to take care of the “extra” power needed at these times and as such a user needs a smaller capacity connection and can save monthly billing cost this way.



ATE Energy ApS, Nordvej 7-9, 4200, Slagelse, Denmark, ATE Energy a part of ATE Group

Phone: +45 7020 2230 Email: sales@ate-energy.dk

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