FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

UTILITY

CUSTOMER

1 PHASE

REVENUE METER

MAIN PANEL

LOAD

STORAGE CHARGER

GRID FORMING INVERTER

AUTOMATIC OPEN TRANSFER SWITCH

ENERGY STORAGE

PROTECTED LOAD PANEL

INVERTER

DC

AC
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

CONFIGURATION #1B
PARALLEL ENERGY STORAGE
- STORAGE NOT ALLOWED TO EXPORT TO GRID

M
REVENUE METER

MAIN PANEL

LOADS

GRID FOLLOWING INVERTER

ENERGY STORAGE

OPTIONAL

PROTECTED LOAD PANEL

DC
INVERTER

AC

12/05/2018

ENERGY STORAGE CONFIGURATION
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

CONFIGURATION #1C
PARALLEL ENERGY STORAGE + GENERATION
-GENERATION AND ENERGY STORAGE NOT ALLOWED TO EXPORT TO GRID
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

UTILITY

CUSTOMER

AUTOMATIC OPEN TRANSFER SWITCH

1 PHASE

NET METER

MAIN PANEL

STORAGE CHARGER

GRID FORMING INVERTER

AUTOMATIC OPEN TRANSFER SWITCH

PRODUCTION METER

LOCKABLE UTILITY ACCESSIBLE DISCONNECT SWITCH

GRID FOLLOWING INVERTER

(PV ARRAY)

ENERGY STORAGE

PROTECTED LOAD PANEL

INVERTER

DC

AC

12/05/2018

PV + ENERGY STORAGE CONFIGURATION
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

CONFIGURATION #2B
AC COUPLED
- ENERGY STORAGE CHARGED BY 100% RENEWABLE ENERGY
- ENERGY STORAGE MAY DISCHARGE TO GRID
- METERING MUST BE TIME SYNC

UTILITY
Customer

Controlled by inverter programming:
1. PV bypass energy storage when energy storage fully charged
2. Energy storage charged by PV only
3. Energy storage discharge to main panel or protected load panel only
*4. Optional – ATS may be omitted if inverter can deliver utility side power while charging energy storage from 100% renewable energy
**5. Other configurations may be used that satisfy the energy storage being 100% charged by renewable energy
6. Required inverter programming must be locked down

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td>PRODUCTION METER</td>
<td>DC</td>
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<tr>
<td>LOCKABLE UTILITY ACCESSIBLE DISCONNECT SWITCH</td>
<td>PV ARRAY</td>
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<td>INVERTER</td>
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<tr>
<td>HYBRID INVERTER**</td>
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<tr>
<td>AUTOMATIC OPEN TRANSFER SWITCH*</td>
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<tr>
<td>MAIN PANEL</td>
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<tr>
<td>NET METER</td>
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<tr>
<td>1 PHASE</td>
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<tr>
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</table>

PV + ENERGY STORAGE CONFIGURATION

12/05/2018
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

REGARDING THE ENERGY STORAGE INVERTER:
1. REQUIRED INVERTER PROGRAMMING MUST BE LOCKED DOWN
2. INVERTER MAY BE CONNECTED TO PROTECTED LOAD PANEL IF INVERTER CAN PROVIDE TRANSFER SWITCH FUNCTION

- ENERGY STORAGE CHARGED FROM GRID OR RENEWABLE ENERGY
- ENERGY STORAGE NOT ALLOWED TO EXPORT TO GRID
- METERING MUST BE TIME SYNC

PV + ENERGY STORAGE CONFIGURATION
Figure illustrates representative concepts and intent. Packaged systems may have hybrid inverters with these features provided as part of the package.

Configuration #3A
Hybrid Example
Meter Option
- Energy storage may export
- Metering must be time sync

1. Grid follow
2. Grid form
3. Charger
4. Transfer
5. Required inverter programming must be locked down
*6. Meter required when protected load panel is installed on inverter side of production meter
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS AND INTENT. PACKAGED SYSTEMS MAY HAVE HYBRID INVERTERS WITH THESE FEATURES PROVIDED AS PART OF THE PACKAGE.

CONFIGURATION #3B HYBRID EXAMPLE TRANSFER OPTION
- ENERGY STORAGE MAY EXPORT
- METERING MUST BE TIME SYNC

1. GRID FOLLOW
2. GRID FORM
3. CHARGER
4. TRANSFER
5. REQUIRED INVERTER PROGRAMMING MUST BE LOCKED DOWN

PRODUCTION METER
LOCKABLE UTILITY ACCESSIBLE DISCONNECT SWITCH
HYBRID INVERTER
ENERGY STORAGE
AUTOMATIC OPEN TRANSFER SWITCH
PROTECTED LOAD PANEL

(PV ARRAY)