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Title: The logic of energy storage and photovoltaics is different

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Confused about how solar panels differ from battery storage? You're not alone. While both are critical for clean energy solutions, they serve distinct roles in power generation and management. This guide breaks down ...

Photovoltaics (PV) refers to the technology that converts sunlight directly into electricity using solar panels. Energy storage systems, on the other hand, store excess energy for later use, addressing the ...

Learn about the relationship between photovoltaics and energy storage. Discover how solar power integrates with storage solutions.

In this chapter, we have provided a highlight regarding the energy storage related to PV systems. The battery behavior has been amply highlighted beside the battery state of charge estimation methods.

While both photovoltaic inverters and energy storage inverters convert DC to AC, the latter also incorporates additional functionalities for battery management and grid interaction.

Photovoltaic solar energy and thermal solar energy are two technologies that harness the sun's power to generate clean energy, although each works differently and is designed for specific ...

This review paper provides the first detailed breakdown of all types of energy storage systems that can be integrated with PV encompassing electrical and thermal energy storage systems.

One of the key advantages of energy storage is to maximize the use of energy produced by the PV system for self-consumption. In systems without storage, excess energy is given back to the grid, often at unfavorable ...

The relationship between PV systems and energy storage solutions is not merely additive but rather synergistic. By integrating these systems, the renewable generation capacity of solar panels can be ...

Although using energy storage is never 100% efficient--some energy is always lost in converting energy and retrieving it--storage allows the flexible use of energy at different times from when it was generated.

What Is Energy Storage? Advantages of Combining Storage and Solar Types of Energy Storage Pumped-Storage Hydropower Electrochemical Storage Thermal Energy Storage Flywheel Storage Compressed Air Storage Solar Fuels Virtual Storage The most common type of energy storage in the power grid is pumped hydropower. But the storage technologies most frequently coupled with solar power plants are electrochemical storage (batteries) with PV plants and thermal storage (fluids) with CSP plants. Other types of storage, such as compressed air storage and flywheels, may have different char... See more on energy.gov

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.mc_vtvc_meta_block_area .mc_vtvc_meta_row .mc_vtvc_meta_row_channel::before,#serpvidans.vsacf
.mc_cwvc .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block .mc_vtvc_meta_row
.mc_vtvc_meta_row_channel::before,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area .mc_vtvc_meta_row .mc_vtvc_meta_row_channel::before,#serpvidans.vsacf
.mmlist .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block .mc_vtvc_meta_row
.mc_vtvc_meta_row_channel::before{content:" . "}#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area .mc_vtvc_meta_pubdate,#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block .mc_vtvc_meta_pubdate,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area .mc_vtvc_meta_pubdate,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block
.mc_vtvc_meta_pubdate{color:var(--bing-smtc-foreground-content-neutral-tertiary);padding-bottom:0}.vsacf
.mc_cwvc .mc_vtvc_con_rc,.vsacf .mmlist .mc_vtvc_con_rc{display:flex}.vsacf .mc_cwvc .mc_vtvc_con_rc
.mc_vtvc_meta_w,.vsacf .mmlist .mc_vtvc_con_rc .mc_vtvc_meta_w{height:auto}.vsacf
.b_title{padding-left:0}.vsacf .b_title
.mmtitle{font:var(--bing-smtc-text-global-subtitle1-strong);margin-bottom:0}.vsacf .b_title .mmtitle
a::after{content:"";margin:5px 5px 0 0;border-top:2px solid
var(--smtc-foreground-content-neutral-primary);border-right:2px solid
var(--smtc-foreground-content-neutral-primary);background-size:7px
7px;width:7px;height:7px;transform:rotate(45deg);display:inline-block;margin-left:4px}#serpvidans.vsacf
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.mc_cwvc{width:100%;margin-bottom:var(--smtc-gap-between-content-x-small)}#serpvidans.vsacf
.mc_cwvc .mc_vtvc{box-shadow:none}#serpvidans.vsacf .mc_cwvc .mc_vtvc
.mc_vtvc_meta{height:100%;padding:var(--smtc-gap-between-content-x-small) 0
var(--smtc-gap-between-content-x-small)
var(--mai-smtc-padding-card-default);background:var(--bing-smtc-background-ctrl-fade-on-image-stop-0)}#s
erpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta
.mc_vtvc_title{font:var(--bing-smtc-text-global-body1)}#serpvidans.vsacf .cardless.mmlist
.mc_vtvc_con_rc,#serpvidans.vsacf .cardless.mmlist .mc_vtvc_th{height:auto}#serpvidans.vsacf
.vsb_tr_c.va_tt{margin:0}#serpvidans.vsacf .vtbc .mv_vtvc_play,#serpvidans.vsacf .vtbc
.mv_vtvc_play_ext{position:static}#serpvidans.vsacf .va_tt
.mc_vtvc_ban_lo{display:block}#serpvidans.vsacf
.mc_bc{width:auto;border-radius:var(--smtc-ctrl-badge-sm-corner);padding:var(--smtc-padding-ctrl-text-side)
var(--smtc-gap-between-content-xx-small)}#serpvidans.vsacf .rmts .mc_bc
ems{display:none}#serpvidans.vsacf a.vsb_tr_t{color:var(--smtc-foreground-content-neutral-primary)}.vsacf
.va_tt .vsb_tr_chd .mc_vtvc_th_dock.rmoveoverlay{height:36px}.vsacf .va_tt .vsb_tr_chd
.mc_vtvc_th_dock{height:92px;background:linear-gradient(180deg,var(--bing-smtc-background-ctrl-fade-on-i
mage-stop-0) 0%,var(--mai-smtc-background-ctrl-on-image-rest) 100%)}.vsacf .va_tt a.vsb_tr_t{padding:0
0;font:var(--bing-smtc-text-global-body-2-alt-strong)}.vsacf .va_tt .vsb_tr_chd .mc_vtvc
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```
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.mc_vtvc_title{color:var(--mai-smtc-foreground-ctrl-on-image-rest)}.vsacf
span.vcmt_ctt{font:var(--bing-smtc-text-global-caption2);margin:var(--smtc-gap-between-content-xx-small) 0
0;height:16px}#serpvidans.vsaf .vsb_tr_chd .mc_vtvc_tot .mc_vtvc_title
strong{font-size:14px;line-height:20px;display:unset}#serpvidans.vsaf .va_tt .b_sldrp
.slide:not(:first-child){margin-left:var(--smtc-gap-between-content-small)}#serpvidans.vsaf .va_tt
.vsb_tr_chd .mc_vtvc
.mc_vtvc_title{white-space:normal;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}#se
rpvidans.vsaf .b_module_expansion_control .b_btnContainer
.b_CompactExpansion{background-color:var(--bing-smtc-background-ctrl-neutral-rest);display:flex;justify-co
ntent:center;align-items:center;gap:4px;width:fit-content;height:auto;padding:8px 12px}#serpvidans.vsaf
.b_module_expansion_control .b_btnContainer .b_CompactExpansion
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ound-ctrl-neutral-primary-alt-rest)}#serpvidans.vsaf .b_module_expansion_control .b_btnContainer
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path#Shape{fill:var(--bing-smtc-foreground-ctrl-neutral-primary-alt-rest)}#serpvidans.vsaf
.b_module_expansion_control
.b_btnContainer::after{content:"";position:absolute;width:100%;bottom:20px;left:0;height:1px;border-radius:
1px;background:var(--smtc-stroke-ctrl-on-neutral-rest)}#b_results
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.b_ans.b_vidAns .cardless .salink{margin:0}#b_results .b_ans.b_vidAns .mmlist
.mc_vtvc{margin-top:10px}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc
.mc_vtvc_meta{display:flex;flex-direction:column;justify-content:space-between;margin:0 10px 4px
12px}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
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.mc_vtvc_meta_row_channel,#b_results .b_ans.b_vidAns .mmlist .mc_vtvc .mc_vtvc_meta
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.mc_vtvc{background-color:unset}.mmtitle>a{display:block}.mc_fh{height:100%;border-radius:6px}.mc_tc_
bs{overflow:hidden}#mc_cwvc_1770460636378 { width:356px; max-width: 100%; } .mc_vtvc
.mc_vtvc_meta { padding: 16px 16px 16px 16px; } .mc_vtvc .mc_vtvc_meta_w { height: 139px; margin-top:
-0px; } .mc_vtvc .mc_vtvc_title { height: 54px; line-height: 18px; margin-bottom: 18px; margin-top: 0px; }
.mc_vtvc .mc_vtvc_meta_block_area { height: 35px; } .mc_vtvc .vtmu, .mc_vtvc .vtpl { bottom: 147px; }
.mc_vtvc_th_dock { height: 139px; } .mc_vtvc_th .cico { height: 200px; }
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rgba(0,0,0,.05);line-height:0;margin:0;position:relative;border-radius:6px;overflow:hidden}.mc_vtvc.noshado
w{box-shadow:none}.mc_vtvc_con_rc{border-radius:6px;overflow:hidden;position:relative}.mc_vtvc>a{colo
r:#71777d;display:block;text-decoration:none;width:100%}.mc_vtvc>a:focus::after{outline:2px solid
#00a89d;width:100%;height:100%;content:"";outline-offset:-2px;position:absolute;top:0;left:0}.mc_vtvc_th{ba
```

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ckground-color:#d5d5d5;position:relative}.mc_vtvc_th
.cico{border-radius:0}.mc_vtvc_ban_lo,.mc_vtvc_ban_up{position:absolute;vertical-align:middle}.mc_vtvc_
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a:hover{text-decoration:underline}.mc_vtvc_src_ico{float:left;margin-right:4px}.mc_vtvc_act{height:16px;m
argin-top:-40px;padding:12px
8px;z-index:1}.mc_vtvc_actc{right:16px;bottom:16px;position:absolute;display:inline-block;z-index:1}.mc_v
tvc_act_sep{border-top:1px solid #d5d5d5;height:40px;margin:0 8px}.mc_vtvc_fh
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.b_topTitle{margin-bottom:8px}.mc_vtvc_htc{width:100%;height:100%;position:absolute;top:0;bottom:0;left
:0;right:0}.mc_vtvc_htb{width:100%;height:100%;background:rgba(0,0,0,.7);position:absolute;top:0;bottom:
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ical-align:middle;text-align:center}.mc_vtvc_th_live_b{background-color:#c80000;color:#fff;display:inline-bl
ock;padding:2px 8px;font:11px/14px
Arial;border-radius:2px;text-transform:uppercase;height:15px;width:26px;position:absolute;left:8px;top:110p
x}.isvctrl .isv
.mc_vtvc_ban_up{left:0;right:initial}.mc_vtvc_ban_lo,.mc_vtvc_ban_up{right:0}.vt_text.b_IRight
.b_ILeft{margin:0 0 0 1px;height:14px;line-height:14px;padding:2px
8px;background:rgba(0,0,0,.75);border-radius:2px;font-weight:bold}.mc_vthtb{width:100%;height:100%;bac
kground:rgba(0,0,0,.7);position:absolute;top:0;bottom:0;left:0;right:0;display:table}.mc_vtht{width:100%;pad
ding:0
16px;line-height:16px;color:#fff;text-decoration:underline;word-break:break-word;box-sizing:border-box;vert
ical-align:middle;text-align:center;display:table-cell}.vt_text.b_IRight .b_ILeft{margin:0 0 0
1px;height:14px;line-height:14px;padding:2px
8px;background:rgba(0,0,0,.75);border-radius:2px;font-weight:bold}.emptyStyleForDebuggingPurpose{top:0
}.emptyStyleForDebuggingPurpose{top:0}.mc_vtvc_center_play{width:32px;height:32px;background-size:c
ontain;position:absolute;margin:auto;bottom:0;top:0;left:0;right:0;box-shadow:none;border-radius:0}.mc_vtvc
_center_play.rmvbg{width:32px;height:32px;background-image:none}.mc_vtvc_htb,.mc_vtvc_ht{display:no
ne}.vt_onhv .mc_vtvc_htb{display:table}.vt_onhv
.mc_vtvc_ht{display:table-cell}.mc_vtvc_center_play{display:inline-block}.vt_onhv
.mc_vtvc_center_play{display:none}.mc_vtvc .vtmu,.mc_vtvc .vtpl{bottom:163px}.vsarf .mc_vtvc
.vtmu,.vsarf .mc_vtvc .vtpl{bottom:122px}.svarh #mmcar .mc_vtvc .vtmu,.svarh #mmcar .mc_vtvc
.vtpl{bottom:137px}.svarht #mmcar .mc_vtvc .vtmu,.svarht #mmcar .mc_vtvc
.vtpl{top:8px;left:8px}.mc_vtvc_center_play{background-image:url(data:image/svg+xml,%3Csvg%20width
%3D%2232%22%20height%3D%2232%22%20viewBox%3D%220%200%2032%2032%22%20fill%3D%22
none%22%20xmlns%3D%22http%3A%2F%2F%2F2000%2Fsvg%22%3E%0D%0A%20%20%20%20%3Cr
ect%20width%3D%2232%22%20height%3D%2232%22%20rx%3D%2216%22%20fill%3D%22black%22%
20fill-opacity%3D%220.6%22%2F%3E%0D%0A%20%20%20%20%3Cpath%20d%3D%22M14.2354%201
0.1923C13.2355%209.62986%2012%2010.3524%2012%2011.4997V20.5C12%2021.6472%2013.2355%202
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RK5CYII=)}.mc_bc_w {height:18px;padding:8px;text-align:right}.mc_bc {background-color:rgba(0,0,0,.75);padding:2px 8px;line-height:14px;color:#fff;display:inline-block;vertical-align:middle;border-radius:2px;font-weight:bold}.mc_bc_w .pivot {text-align:center;margin-right:1px;height:14px}.vsarr .mmgrid .mc_bc_w .mc_bc {background-color:rgba(0,0,0,.75);opacity:1}.mmsi {height:16px;width:16px;position:relative;top:5px;padding-right:var(--smtc-gap-between-content-xx-small)}.mmsi-microsoftnews,.mmsi-msn {top:3px}.vrhdata {display:none}.vrhc line.nhvpv .pffvi,.vrhc line.nhvpv[data-tps="S"] .pffvt,.vrhc line.nhvpv[data-tps="M"] .pffvt,.vrhc line.nhvpv[data-tps="L"] .pffvt {display:inline-flex}.vrhc line.nhvpv .vrhct.pffv .vrhol {display:none}.vrhc line.nhvpv .vrhct.pffv .player_ol {background:var(--mai-smtc-background-ctrl-on-image-hover);transition:background-color .5s;display:flex;align-items:center;justify-content:center;padding:var(--smtc-gap-between-content-x-small);gap:var(--smtc-gap-between-content-x-small);box-sizing:border-box}.mc_vtvc_th img {transition:all .3s ease-out}.nhvpv+.mc_vtvc_th img {transform:scale(1.1)}.smtplayerhtml5 {height:100%;width:100%;overflow:hidden}.smtplayerhtml5 video {min-height:100%;min-width:100%}.smtplayerhtml5 .videoplaying {background-color:#000}.smtplayerhtml5.hide {display:none}.pffvt {display:none;color:var(--mai-smtc-foreground-ctrl-on-image-rest);font:var(--bing-smtc-text-global-subtitle2-strong)}.pffvi {mask:url(/rp/ui/07wU6K7FR_inzG7DRbP1i8fGo.svg) center no-repeat;mask-size:12px;background:var(--bing-smtc-background-card-on-image-default);width:20px;height:20px;flex-shrink:0;align-self:flex-start} [data-tps="L"] .pffvt {font:var(--bing-smtc-text-global-subtitle2-strong)} [data-tps="L"] .pffvi {width:22px;height:22px;mask-size:16px} [data-tps="S"] .pffvt {font-size:0} [data-tps="S"] .pffvi {width:24px;height:24px;mask-size:24px;align-self:center}.hvpv.h5s .pffvt {display:inline-flex}.hvpv.h5s .vrhct.pffv .vrhol {display:none}.hvpv.h5s .vrhct.pffv .player_ol {background:var(--mai-smtc-background-ctrl-on-image-hover);transition:background-color .5s;display:flex;align-items:center;justify-content:center;padding:var(--smtc-gap-between-content-x-small);gap:var(--smtc-gap-between-content-x-small);box-sizing:border-box}.pffvt {text-decoration:underline}.vrhc .vrhol {position:absolute;width:100%;height:35px;max-height:35px;bottom:0;left:0;padding:0;background:none;display:block;z-index:9}.vrhc .vrhol.hide,.vrhc .vrhol .hide {display:none}.vrhot {white-space:nowrap;text-overflow:ellipsis;overflow:hidden;display:inline-block;position:absolute;max-width:240px;height:18px;line-height:14px;margin-left:8px;top:10px;left:0;right:0;border-radius:2px;padding-right:8px}.vrhot div {display:inline-block}.vrhot nt {color:#fff;font-size:11px;font-weight:bold;background-color:rgba(0,0,0,.75);padding:2px 8px;margin-left:0;top:0;box-sizing:border-box;position:relative}.vrhc .ricons {position:absolute;right:8px;top:10px;left:auto;bottom:auto;height:18px;display:inline-block;cursor:pointer}.vrhol.icons_1 .vrhot {margin-right:27px}.vrhol.icons_2 .vrhot {margin-right:49px}.vrhol.icons_3 .vrhot {margin-right:79px}.vrhol .vrhot .vsb_tr_chd .vrhol.icons_1 .vrhot {margin-right:0}.vpb {position:absolute;display:block;bottom:0;left:0;height:4px}.vpb div {position:absolute}.vpb nt {width:0;background:#fff}.vpb nt.test {display:none}.vpb.back {background-color:#999}.vrhc .vrhol.npb {height:36px;max-height:36px}.vrhol
```

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.vadda{ width:22px;height:18px;padding:0;margin-right:0;margin-left:2px;bottom:0;position:relative;display:i
nline-block;z-index:1;background:rgba(0,0,0,.75);border-radius:2px;overflow:hidden}.vrhol
.vadda.hide{ display:none}.vrhol .vadda .mc_vfaa{margin:3px 5px}.ricons .vol{float:left}.ricons
.adultFlag{float:right}.vol{ width:22px;height:18px;bottom:0;margin-left:1px;margin-right:1px;position:relati
ve;display:inline-block}.vol.hide,.vol .hide{display:none}.vol
.bg{ background:rgba(0,0,0,.75);border-radius:2px}.vol.bg,.vol .nt{position:absolute;bottom:0}.vol
.vol.bg.volnb{border-radius:0 0 2px 2px}.vol .volsliderHandle.bg{border-radius:2px 2px 0 0}.vol .nt
.volsliderHandle{height:70px;display:none;width:22px;float:left;bottom:18px;position:absolute;display:block
}.vol .nt .volsliderHandle.hide{display:none}.volsliderHandle
.vsb{height:54px;width:4px;background-color:#999;margin:9px auto
8px;position:relative;display:block;border-radius:2px}.volsliderHandle
.vsh{height:6px;width:14px;padding:9px 7px 9px 7px;margin:0
-12px;display:block;position:absolute;top:30px}.volsliderHandle .vsh.hide{display:none}.volsliderHandle
.vshi{height:4px;width:14px;background-color:#fff;border-radius:2px}.volMuteIcon{ width:16px;height:14px;
margin:2px
4px;float:left}.volMuteHandle{ width:22px;height:18px}.vo{background:url(/rp/ffZxBXEIP9WYOO0jhTaEl
yLhEVU.svg) no-repeat}.vm{background:url(/rp/fsX-ZVd03wB2TL0vmQJxSp4U9vs.svg)
no-repeat}.vl{background:url(/rp/YXYMPC1Rry_XJGc7Yg8lR4B2eEs.svg)
no-repeat}.vf{background:url(/rp/NosIR4amKTs1zYxWy3laZN3HRk.svg)
no-repeat}@media(forced-colors:active){.vol{forced-color-adjust:none}.vrhc .line .vt_vp,.vrhc.popout
.vt_vp,.vrhc.mousefollow
.vt_vp{position:absolute;bottom:0;border:hidden;padding:0;top:0;left:0;z-index:3}.vrhtc
.hide{display:none}.vrh_clc .vt_vp,.vrh_clc .vrhtc .vrhi,.vrh_clc .player_ol{cursor:pointer}.vrh_clc
.cico{border-radius:0}.vrhtc{border:hidden;top:0;left:0;padding:0}.vrhc.mousefollow .vrhtc,.vrhc.popout
.vrhtc{background-color:#999}.vrhtpc.load
.player_ol{background:url(/rp/J_o2maogFDeUOsovPjL-ofEuxJ4.gif) center center no-repeat}.vrhc .line .vrhtc
.vrhi,.vrhc.popout .vrhtc .vrhi,.vrhc.mousefollow .vrhtc
.vrhi{position:absolute!important;border:hidden;z-index:2;padding:0;left:0;top:0}.player_ol{position:absolute
;width:100%;height:100%;bottom:0;border:hidden;z-index:7}.vrhc.popout,.vrhc
.line,.vrhc.mousefollow{border-radius:6px;overflow:hidden;display:table-row-group;background:none}.vrhc.p
opout,.vrhc.mousefollow{z-index:4;box-shadow:0 4px 4px rgba(0,0,0,.1),0 2px 80px rgba(0,0,0,.2)}.vrhc
.line{z-index:1;margin:0}.vrhc.popout,.vrhc .line{position:absolute;top:0}.vrhc.popout{border:1px solid
#fff}.vrhc.mousefollow{position:fixed}.vrhcpc{position:relative;top:0;left:0;display:table-row}.vrhcpc
.vrhtc{position:relative;overflow:hidden}.vrhc.hide{display:none}@keyframes
vh_fadein{from{opacity:0}to{opacity:1}}.vrhc.not(.hide){animation:vh_fadein 250ms}.vrhc .line
img{color:transparent}.vrhc
.line.fullsize{height:100%}.vrhc,.vrhc.hover,.vrhc.link,.vrhc.active,.vrhc.visited{color:#000;text-decoration:none
}.vrhc.vrh_clc{cursor:pointer}a.hover-anchor{display:block;height:100%;width:100%;text-decoration:none
}.vrhstat{height:0;overflow:hidden}.mmlist .mc_vtvc .mc_vtvc_meta { padding: 12px 16px 16px 16px; }
.mmlist .mc_vtvc .mc_vtvc_meta_w { height: 112px; margin-top: -0px; } .mmlist .mc_vtvc .mc_vtvc_title {
height: 44px; line-height: 22px; margin-bottom: 0px; margin-top: 0px; } .mmlist .mc_vtvc
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.mc_vtvc_meta_block_area { height: 40px; } .mmlist .mc_vtvc .vtmu, .mmlist .mc_vtvc .vtpl { bottom: 120px; } .mmlist .mc_vtvc_th_dock { height: 112px; } .mmlist .mc_vtvc_th .cico { height: 131px; } .mmlist .mc_vtvc { margin: 10px 1px 0 0 } .mmlist .mc_vtvc_con_rc { display: flex } .cardless .mmlist .mc_vtvc_con_rc { height: 112px } .mmlist .mc_vtvc .mc_vtvc_meta { display: flex; flex-direction: column; justify-content: space-between; margin: 0 10px 4px 12px; padding: 0 } .mmlist .mc_vtvc_title { font-weight: 400; font-size: 16px; height: 44px; line-height: 22px; margin-bottom: 0; margin-top: 0; color: unset } .mmlist .mc_vtvc_meta_row { font-size: 13px } .mmlist .mc_vtvc .mc_vtvc_meta_block_area { height: unset } .mmlist .mc_vtvc .vtmu, .mmlist .mc_vtvc .vtpl { bottom: 8px } .cardless .mmlist .mc_vtvc { box-shadow: none } .cardless .mmlist .mc_vtvc_center_play { width: 32px; height: 32px } .cardless .mmlist .mc_vtvc_title { font-size: 16px; color: unset } .cardless .mmlist .mc_vtvc_meta_row { line-height: 20px } .cardless .mmlist .mc_vtvc_meta_pubdate { padding-bottom: 2px; color: #666 } .cardless .mmlist .mc_vtvc_th .cico, .cardless .mmlist .mc_vtvc_th div.rms_img { border-radius: 6px } .cardless .mmlist .mc_vtvc_th { height: 111px } .cardless .mmlist .mc_vtvc_htc { border-radius: 6px; overflow: hidden } #serpvidans.vasac .cardless { box-shadow: none } .cardless .mmlist .mc_bc { padding: 2px 8px; line-height: 14px; border-radius: 2px; font-weight: normal } .mmlist .mc_vtvc: hover .mc_vtvc_title { text-decoration: underline } .mmgrid > div { width: 197px; display: inline-block; margin-right: 8px; margin-bottom: 8px; box-shadow: 0 0 0 1px rgba(0,0,0,.05); position: relative; vertical-align: top; overflow: hidden; white-space: normal; border-radius: 6px } .vsarr .mmgrid > div, .vsarr 1stbig .mmgrid > div { margin-right: 8px; margin-bottom: 8px } #serpvidansrr .mc_vtvc .mc_vtvc_meta { height: auto } #serpvidansrr .mc_vtvc .mc_vtvc_title { display: -webkit-box; -webkit-line-clamp: 2; -webkit-box-orient: vertical } .mmgrid .mc_tc { border: 0 } .vsa .mmgrid > div: nth-child(3n) { margin-right: 0 } .vsa .b_moreLink { padding-top: 4px } #serpvidansrr .mc_vtvc_meta_row { line-height: 18px; font-size: 100%; height: 17px } .vsarr .mmgrid > div: nth-child(2n) { margin-right: 0 } #serpvidansrr .mc_vtvc .vtmu, #serpvidansrr .mc_vtvc .vtpl { bottom: 128px } .vsarr 1stbig .mmgrid > div: nth-child(2) { margin-right: 0 } #serpvidansrr .uipolish .mc_vtvc_meta_pubdate, #serpvidansrr .uipolish .mc_vtvc_meta_channel, #serpvidansrr .uipolish #vidans2 .b_videocard .video_metadata .video_source { color: #767676 } #serpvidansrr #vidans2 .b_videocard .video_metadata_container, #serpvidansrr #vidans2 .b_videocard .video_metadata_container .video_metadata > h3 { width: 100% } @media (max-width: 1362.9px) { #serpvidansrr .mmgrid > div { width: 168px; height: 206px } #serpvidansrr .mmgrid > div .cico, #serpvidansrr .mmgrid > div .cico .rms_img { width: 168px; height: 100px } #serpvidansrr .mc_vtvc .mc_vtvc_meta { padding: 12px } #serpvidansrr .mc_vtvc .mc_vtvc_title { height: 32px; line-height: 16px; margin-bottom: 16px } #serpvidansrr .mc_vtvc .mc_vtvc_meta_block_area { height: 34px } #serpvidansrr .mc_vtvc_meta_row { line-height: 15px; font-size: 13px; height: 15px } #serpvidansrr .mc_vtvc_meta_pubdate { padding-bottom: 4px } #serpvidansrr .mc_vtvc .vtmu, #serpvidansrr .mc_vtvc .vtpl { bottom: 114px } #serpvidansrr #vidans2 .b_videocard .videoPlayer, #serpvidansrr #vidans2 .b_videocard
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.videoPlayer .cico,#serpvidansrr #vidans2 .b_videocard .videoPlayer .cico
.rms_img{width:343px!important;height:194px!important;margin-right:0}}@media(max-width:1274.9px){#s
erpvidansrr .mmgrid>div{width:124px;height:164px}#serpvidansrr .mmgrid>div .cico,#serpvidansrr
.mmgrid>div .cico .rms_img{width:124px;height:76px}#serpvidansrr .mc_vtvc
.mc_vtvc_meta{padding:8px}#serpvidansrr .mc_vtvc
.mc_vtvc_title{height:32px;line-height:16px;margin-bottom:12px}#serpvidansrr .mc_vtvc
.mc_vtvc_meta_block_area{height:28px}#serpvidansrr
.mc_vtvc_meta_row{line-height:13px;font-size:11px;height:13px}#serpvidansrr
.mc_vtvc_meta_pubdate{padding-bottom:2px}#serpvidansrr .mc_vtvc .vtmu,#serpvidansrr .mc_vtvc
.vtpl{bottom:96px}#serpvidansrr #vidans2 .b_videocard .videoPlayer,#serpvidansrr #vidans2 .b_videocard
.videoPlayer .cico,#serpvidansrr #vidans2 .b_videocard .videoPlayer .cico
.rms_img{width:256px!important;height:144px!important;margin-right:0}#serpvidansrr .maskthumb
.mc_bc_w{padding:8px 4px 4px 8px}#serpvidansrr.withsplitline
.mmgrid>div:nth-last-child(1),#serpvidansrr.withsplitline
.mmgrid>div:nth-last-child(2){margin-bottom:24px}#serpvidansrr.withsplitline .mmgrid{border-bottom:1px
solid #ecec; margin-bottom:16px}#serpvidansrr #vidans2 .b_videocard
.video_metadata{max-width:auto;padding:12px 16px}#serpvidansrr #vidans2
.b_videocard{margin-bottom:12px;box-shadow:0 0 1px rgba(0,0,0,.05),0 2px 3px
rgba(0,0,0,.1);border-radius:6px}#serpvidansrr .b_rich{padding-top:0}#serpvidansrr #vidans2
.videoPlayer{border-radius:6px 6px 0 0;overflow:hidden}#serpvidansrr #vidans2 .b_videocard
.video_metadata>h3{white-space:nowrap;overflow:hidden;text-overflow:ellipsis;-webkit-line-clamp:1;line-he
ight:15px;height:15px;font-size:13px;color:#000;margin-bottom:20px;font-family:"Arial",Helvetica,Sans-Seri
f;font-style:normal;display:block}#serpvidansrr.vsarr1stbig #vidans2 .b_videocard .video_metadata
.actionmenu{display:none}#serpvidansrr #vidans2 .b_videocard .video_summary,#serpvidansrr #vidans2
.b_videocard .video_source{line-height:15px}#serpvidansrr #vidans2 .b_videocard .videoPlayer
.vtbc{right:0}Videos of The Logic of Energy Storage and Photovoltaics Is DifferentWatch video1:32:47An
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video.sb_doct_txt{color:#4007a2;font-size:11px;line-height:21px;margin-right:3px;vertical-align:super}.b_da
rk .sb_doct_txt{color:#82c7ff}solar-system [PDF]Differences between energy storage and
photovoltaicsPhotovoltaic solar energy and thermal solar energy are two technologies that harness the sun's
power to generate clean energy, although each works differently and is designed for specific ...

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