



# independent energy storage and new energy storage

Independent energy storage planning model Aiming at the problems of unclear service scope, high investment cost, long payback period, and low utilization rate faced by the construction of new energy storage, an energy storage planning method New Energy Storage Technologies Empower Energy Power generation forecast for different energy sources worldwide, 1000TWhElectricalMechanical2. Energy storage can have a major impact on generators, grids and end usersIndependent energy storage stations are a rising trend among generators and grids??????Seed and Angel4. Opportunities and challenges for the energy storage industrysegments and targets.Yongdong LiuKPMG ChinaMindy DuMay ZhouWu WeiAssociationMichelle LiangAbout CEC Electric Transportation & Energy Storage AssociationFor a list of KPMG China offices, please scan the QR code or visit our website:Liquid fuels Natural gas Coal Nuclear Renewables (incl. hydroelectric) Source: EIA, Statista, KPMG analysis Depending on how energy is stored, storage technologies can be broadly divided into the following three categories: thermal, electrical and hydrogen (ammonia). The electrical category is further divided into electrochemical, mechanical and el?assets.kpmg ???????#b\_results

```
.b_vidAns{border-radius:6px;box-shadow:0 0 0 1px rgba(0,0,0,.05);padding:16px 20px;gap:10px;background:#fff}@charset "UTF-8";#b_results .b_ans.b_vidAns{box-shadow:none!important;padding:var(--smtc-gap-between-content-medium) 0!important;background:var(--bing-smtc-background-ctrl-fade-on-image-stop-0)}#b_results .b_ans.b_vidAns #serpvidans.vsacf .mc_vtvc,#b_results .b_ans.b_vidAns #serpvidans.vsacf .mc_vtvc_th,#b_results .b_ans.b_vidAns #serpvidans.vsacf .cico,#b_results .b_ans.b_vidAns #serpvidans.vsacf .mc_vtvc_htb,#b_results .b_ans.b_vidAns #serpvidans.vsacf .vrhc,#b_results .b_ans.b_vidAns #serpvidans.vsacf .vrhcp,#b_results .b_ans.b_vidAns #serpvidans.vsacf .vrhtc,#b_results .b_ans.b_vidAns #serpvidans.vsacf .vrhtpc{border-radius:var(--mai-smtc-corner-list-card-nested-default)}#b_results .b_ans.b_vidAns #serpvidans.vsacf .mmlist .mc_vtvc,#b_results .b_ans.b_vidAns #serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta{margin:0}#b_results .b_ans.b_vidAns #serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_channel,#b_results .b_ans.b_vidAns #serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_row_channel{color:var(--smtc-foreground-content-neutral-primary)}#serpvidans.vsacf,#serpvidans.vsacf .expctn .expbody,#serpvidans.vsacf .mmlist {display:flex;flex-direction:column;gap:var(--smtc-gap-between-content-medium)}#serpvidans.vsacf .cico{height:auto}#serpvidans.vsacf .mc_vtvc_ban_lo{top:0;right:auto}#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta{height:auto;padding:var(--smtc-gap-between-content-xx-small) 0 var(--smtc-gap-between-content-xx-small) var(--smtc-gap-between-content-medium);display:flex;flex-direction:column;justify-content:space-between}#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta .mc_vtvc_title,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta .mc_vtvc_title{color:var(--smtc-ctrl-link-foreground-brand-rest);font:var(--bing-smtc-text-global-body2);height:a
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```
uto;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}#serpvidans.vsacf
.mc_cwvc .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block_area,#serpvidans.vsacf .mc_cwvc
.mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block,#serpvidans.vsacf .mmlist .mc_vtvc
.mc_vtvc_meta .mc_vtvc_meta_block_area,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta .
mc_vtvc_meta_block{display:flex;flex-direction:column;gap:var(--smtc-padding-ctrl-text-
side)}#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block_area
.mc_vtvc_meta_row,#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block
.mc_vtvc_meta_row,#serpvidans.vsacf .mmlist .mc_vtvc .mc_vtvc_meta
.mc_vtvc_meta_block_area .mc_vtvc_meta_row,#serpvidans.vsacf .mmlist .mc_vtvc
.mc_vtvc_meta .mc_vtvc_meta_block .mc_vtvc_meta_row{color:var(--smtc-foreground-content-n
eutral-primary);height:var(--mai-smtc-padding-card-default);font:var(--bing-smtc-text-global-
caption1)}#serpvidans.vsacf .mc_cwvc .mc_vtvc .mc_vtvc_meta .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:var(--mai-smtc-padding-card-default)}.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 .b_title .mmtitle{margin-bottom:0}#serpvidans.vsacf .b_title .mmtitle
a{color:var(--smtc-foreground-content-neutral-primary)}#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-
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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.rmoverlay{height:36px}.vsacf .va_tt .vsb_tr_chd .mc_vtvc_th_dock{height:92
px;background:linear-gradient(180deg,var(--bing-smtc-background-ctrl-fade-on-image-stop-0)
0%,var(--mai-smtc-background-ctrl-on-image-rest) 100%)}.vsacf .va_tt a.vsb_tr_t{padding:0
var(--mai-smtc-padding-card-default);font:var(--acf-font-title-2-strong)}.vsacf .va_tt .vsb_tr_chd
.mc_vtvc .mc_vtvc_meta,.vsacf .va_tt .vsb_tr_chd .mc_vtvc .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.vsacf
.vsb_tr_chd .mc_vtvc_tot .mc_vtvc_title strong{font-size:14px;line-
height:20px;display:unset}#serpvidans.vsacf .va_tt .b_sldrp .slide:not(:first-child){margin-
left:var(--smtc-gap-between-content-small)}#serpvidans.vsacf .va_tt .vsb_tr_chd .mc_vtvc .mc_vt
vc_title{white-space:normal;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-
orient:vertical}#serpvidans.vsacf .b_module_expansion_control .b_btnContainer .b_CompactExpa
nsion{background-color:var(--bing-smtc-background-ctrl-neutral-rest);display:flex;justify-
content:center;align-items:center;gap:4px;width:fit-content;height:auto;padding:8px
12px}#serpvidans.vsacf .b_module_expansion_control .b_btnContainer .b_CompactExpansion .b_
CompactExpansionBtnText{font:var(--bing-smtc-text-global-caption1-strong);color:var(--bing-
smtc-foreground-content-brand-rest)}#serpvidans.vsacf .b_module_expansion_control
.b_btnContainer .b_CompactExpansion
.b_arrow{display:flex;margin:0;height:auto}#serpvidans.vsacf .b_module_expansion_control
.b_btnContainer .b_CompactExpansion .b_arrow path#Shape{fill:var(--bing-smtc-foreground-
content-brand-rest)}#serpvidans.vsacf .b_module_expansion_control .b_btnContainer::after{conte
nt:"";position:absolute;width:100%;bottom:20px;left:0;height:1px;border-
radius:1px;background:var(--smtc-stroke-ctrl-on-neutral-rest)}#b_results .b_ans.b_vidAns{box-
shadow:none;padding:12px 20px 0}#b_results .b_ans.b_vidAns
.vasac{padding:unset;margin:0}#b_results .b_ans.b_vidAns .vsa .b_attribution{padding-
bottom:0}#b_results .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
.mc_vtvc_meta_channel{color:#111}#b_results .b_ans.b_vidAns .mmlist .mc_vtvc
.mc_vtvc_meta .mc_vtvc_meta_row_channel,#b_results .b_ans.b_vidAns .mmlist .mc_vtvc
.mc_vtvc_meta .mc_vtvc_meta_block_area{color:#666}#b_results .b_ans.b_vidAns .mmlist
.mc_vtvc .mc_vtvc_meta .mc_vtvc_meta_block_area{bottom:0;height:unset}.b_dark .vsa.cardless
.mc_vtvc{background-color:unset}.mmtitle>a{display:block}.mc_fh{height:100%;border-
radius:6px}.mc_tc_bs{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
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.mc_vtvc .mc_vtvc_title { height: 44px; line-height: 22px; margin-bottom: 0px; margin-top: 0px; }
.mmlist .mc_vtvc .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; } .mc_vtvc{background-color:#fff;box-shadow:0 0 0 1px rgba(
0,0,0,.05);line-height:0;margin:0;position:relative;border-radius:6px;overflow:hidden}.mc_vtvc.no
shadow{box-shadow:none}.mc_vtvc_con_rc{border-radius:6px;overflow:hidden;position:relative
}.mc_vtvc>a{color:#71777d;display:block;text-
decoration:none;width:100%}.mc_vtvc>a:focus::after{outline:2px solid #00a89d;width:100%;hei
ght:100%;content:"";outline-offset:-2px;position:absolute;top:0;left:0}.mc_vtvc_th{background-
color:#d5d5d5;position:relative}.mc_vtvc_th .cico{border-radius:0}.mc_vtvc_ban_lo,.mc_vtvc_ba
n_up{position:absolute;vertical-align:middle}.mc_vtvc_ban_lo{bottom:0}.mc_vtvc_ban_up{top:0
}.mc_vtvc_title{font-weight:normal;margin-
bottom:11px;overflow:hidden;color:#111;height:54px;line-height:18px}.mc_vtvc_title
a{display:inline-block;color:#111}.mc_vtvc_title a:hover{text-decoration:underline}.mc_vtvc_src
_cico{float:left;margin-right:4px}.mc_vtvc_act{height:16px;margin-top:-40px;padding:12px 8px;z
-index:1}.mc_vtvc_actc{right:16px;bottom:16px;position:absolute;display:inline-block;z-
index:1}.mc_vtvc_act_sep{border-top:1px solid #d5d5d5;height:40px;margin:0 8px}.mc_vtvc_fh
.mc_vtvc_act_sep,.mc_vtvc_fh .mc_vtvc_act{visibility:hidden}#serpvidans .b_topTitle{margin-b
ottom: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;botto
m:0;left:0;right:0}.mc_vtvc_ht{width:100%;padding:0 16px;line-height:16px;color:#fff;text-decor
ation:underline;word-break:break-word;box-sizing:border-box;vertical-align:middle;text-align:cen
ter}.mc_vtvc_th_live_b{background-color:#c80000;color:#fff;display:inline-block;padding:2px
8px;font:11px/14px Arial;border-radius:2px;text-
transform:uppercase;height:15px;width:26px;position:absolute;left:8px;top:110px}.isvctrl .isv
.mc_vtvc_ban_up{left:0;right:initial}.mc_vtvc_ban_lo,.mc_vtvc_ban_up{right:0}.vt_text.b_IRigh
t .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_vtvtb{width:100%;height:100%;background:rgba(0,
0,0,.7);position:absolute;top:0;bottom:0;left:0;right:0;display:table}.mc_vtvt{width:100%;padding
:0 16px;line-height:16px;color:#fff;text-decoration:underline;word-break:break-word;box-
sizing:border-box;vertical-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}.emptyStyleFor
DebuggingPurpose{top:0}.mc_vtvc_center_play{width:32px;height:32px;background-size:contai
n;position:absolute;margin:auto;bottom:0;top:0;left:0;right:0;box-shadow:none;border-radius:0}.m
c_vtvc_center_play.rmvbg{width:32px;height:32px;background-
image:none}.mc_vtvc_htb,.mc_vtvc_ht{display:none}.vt_onhv
.mc_vtvc_htb{display:table}.vt_onhv .mc_vtvc_ht{display:table-
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```
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%22%20height%3D%22%20viewBox%3D%220%200%22%20fill%3D%
22none%22%20xmlns%3D%22http%3A%2F%2F .w3 %2F2000%2Fsvg%22%3E%0D%0A%20
%20%20%20%3Crect%20width%3D%22%20height%3D%22%20rx%3D%22%20fill%3D
%22black%22%20fill-opacity%3D%220.6%22%2F%3E%0D%0A%20%20%20%20%3Cpath%2
0d%3D%22M14.%1923C13.%209.62986% .% .% .4997V20.5C12% .% .% .% .8073L22.%3073
C23.% .% .% .% .6926L14.%1923Z%22%20fill%3D%22white%22%20fill-
opacity%3D%220.9%22%2F%3E%0D%0A%3C%2Fsvg%3E)}.mmlist .mc_vtvc{margin:10px
1px 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,.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}.mc_vtvc:hover
.mc_vtvc_title{text-decoration:underline}.mc_vtvc_meta{box-sizing:border-box;display:inline-bl
ock;line-height:18px;position:relative;width:100%}.mc_vtvc_meta_block{bottom:0;position:absol
ute;width:100%}.mc_vtvc_meta_row{line-height:16px;font-size:11px;height:17px;overflow:hidde
n;text-overflow:ellipsis;white-space:nowrap}.mc_vtvc_meta_row a{display:inline-
block}.mc_vtvc_meta_row a:hover{text-decoration:underline}.mc_vtvc_meta_block_area{positio
n:relative}.mc_vtvc_meta_block,.mc_vtvc_meta_block a{color:#444}.b_dark
.mc_vtvc_meta_block{color:#edebe9}.mc_vtvc_meta_row>:nth-of-type(n+2)::before{content:"
"}.mc_vtvc_meta_row .mc_vtvc_meta_row_channel::before{content:" > "}.mc_vtvc_kmt_title{lin
e-height:18px;padding-bottom:4px;font-weight:bold;color:#00809d;text-transform:uppercase;font-
size:11px}.mc_vtvc_kmt,.mc_vtvc_con_rc.onhov .wkmt
.mc_vtvc_meta_row,.mc_vtvc_con_rc.onhov .wkmt .tbc_tt{display:none}.mc_vtvc_con_rc.onhov
.wkmt .mc_vtvc_title{max-height:18px;margin-
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bottom:18px;overflow:hidden}.mc_vtvc_con_rc.onhov.mmsts
.mc_vtvc_title{visibility:hidden}.mc_vtvc_con_rc.onhov
.mc_vtvc_kmt{display:block}.mc_vtvc_kmt_content .b_factrow{line-height:17px;font-
size:11px;max-height:34px;overflow:hidden;text-overflow:ellipsis;padding:0 16px 0
0;color:#444}.mc_vtvc_meta .mc_vtvc_kmt_title{line-height:18px}.mc_vtvc_title:hover{text-dec
oration:none}.mc_vtvc_meta_pubdate{color:#444;padding-bottom:3px}.mc_vtvc_meta_channel{
color:#444}.mc_vtvc_meta_w,.mc_vplvc_meta_w{position:relative}.mc_vtvc_meta_bg_w,.mc_v
plvc_meta_bg_w{height:100%;width:100%;overflow:hidden;position:absolute;top:0}.mc_vtvc_m
eta_bg_w .cico,.mc_vplvc_meta_bg_w .cico{border-radius:0;overflow:visible}.dg_u
.mm_vidch_th_c{overflow:visible}.dg_u .mm_vidch_th_bg img{margin-
top:-20px}.emptyStyleForDebuggingPurpose{top:0}.mc_vtvc_meta_w
.mc_vtvc_meta{background:rgba(255,255,255,.75)}.mc_vtvc_meta_bg_w
img,.mc_vtvc_meta_bg_w .mc_vtvc_cb_w{filter:blur(25px);transform:scale(1.2)}body{--video-
metadata-channel-color:#3c3c3c}body.b_dark{--video-metadata-channel-color:unset}.vsarf
.mc_vtvc_meta_pubdate{color:unset}.vsarf .mc_vtvc_meta_channel{color:var(--video-metadata-
channel-color)}.vsarf .mc_vtvc .mc_vtvc_meta_w .mc_vtvc_title,.vsarf .mc_vtvc
.mc_vtvc_meta_w .mc_vtvc_title strong{font-weight:bold}.vsarf .mc_vtvc_meta_w
.mc_vtvc_meta_row{font-size:13px}.emptyStyleForDebuggingPurpose{top:0}.vsarf .mc_vtvc_th
.cico{height:132px}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{t
op:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptySt
yleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebugg
ingPurpose{top:0}.vtbc .mv_vtvc_play{display:inline-
block;position:absolute;bottom:8px;left:9px;height:8px;width:7px}.vtbc
.mv_vtvc_play_ext{background:url(/rp/Lp38sn_O4jegSK0IHxZVxyp-yKQ.png) -172px
-31px;display:inline-block;height:8px;width:12px;position:absolute;bottom:8px;left:6px}.vtbc
.pivot{height:20px;width:8px;min-width:8px}.vtbc .mv_vtvc_play{background:url(
X//////////9/gMdvAAACnRSTIMAETNEVWAlmbvuo4D1oAAAAB9JRE
FUCB1jmMoABKuaQcSqQhCxKgFGgLhNQIkpQAwA8zkLyQAl6F0AAAASUVORK5CYII=
)}.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);opacit
y:1}.mmsi{height:16px;width:16px;position:relative;top:5px;padding-right:var(--smtc-gap-betwee
n-content-xx-small)}.vrhdata{display:none}.mmgrid>div{width:197px;display:inline-
block;margin-right:8px;margin-bottom:8px;box-shadow:0 0 1px rgba(0,0,0,.05);position:relative
;vertical-align:top;overflow:hidden;white-space:normal;border-radius:6px}.vsarr
.mmgrid>div,.vsarr1stbig .mmgrid>div{margin-right:8px;margin-bottom:8px}#serpvidansrr
```



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```
.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}.vsarr1stbig .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:.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 .videoPlayer .cico,#serpvidansrr #vidans2  
.b_videocard .videoPlayer .cico .rms_img{width:343px!important;height:194px!important;margin-  
right:0} @media(max-width:.9px){#serpvidansrr  
.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 #ececec;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 .vi  
deo_metadata>h3{white-space:nowrap;overflow:hidden;text-overflow:ellipsis;-webkit-line-clamp:
```





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```
height:36px}.vrhol .vadda{ width:22px;height:18px;padding:0;margin-right:0;margin-left:2px;bottom:0;position:relative;display:inline-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:relative;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}.vol MuteHandle{ width:22px;height:18px}.vo{ background:url(/rp/fFZxBXEIP9WYOO0jhTaElyLhE VU.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/NosrlR4amKTs1zYxWy3laZN3HRk.svg) no-repeat}@media(forced-colors:active){.vol{ forced-color-adjust:none}}.vrhc .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.popout,.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}.vrhpc{ position:relative;top:0;left:0;display:table-row}.vrhpc .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,.vr
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hc: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}Independent Energy Storage And New Energy Storage 11:52Innovations for a new era of energy storage | Transforming BusinessDW News 23.1? 2024?6?24?4:13What Are The New Renewable Energy Storage Options Beyond Batteries? - Holistic Balance And Bliss1 4:37How Battery Energy Storage Systems Work (BESS)saVRee 4.3? 2024?10?9?MIT Energy InitiativeThe Future of Energy Storage | MIT Energy InitiativeMITEI's three-year Future of Energy Storage study explored the role that energy storage can play in fighting climate change and in the global adoption of clean energy grids. Replacing fossil fuel-based power generation with Energy Storage Energy Storage is a new journal for innovative energy storage research, covering ranging storage methods and their integration with conventional & renewable systems. Research on the participation of independent energy storage in In the context of high-proportion new energy access and marketization, independent energy storage, mainly electrochemical energy storage, serves as a flexible r The Rise of Independent Energy Storage: Powering Tomorrow's Independent energy storage systems are breaking free from traditional grid dependencies, and let me tell you, they're the new rock stars of renewable energy. In this deep dive, we'll explore why 10 cutting-edge innovations redefining energy storage solutionsHere are ten notable innovations taking place across different energy storage segments, as highlighted in GlobalData's Emerging Energy Storage Technologies report. Pumped-storage renovation for grid-scale, long This Comment explores the potential of using existing large-scale hydropower systems for long-duration and seasonal energy storage, highlighting technological challenges and future research Capacity Compensation Mechanism Design for Energy Storage Shared energy storage plays a crucial role in facilitating the low-carbon transition, serving as a flexible resource to mitigate the volatility of renewable energy. However, the core The Economic Value of Independent Energy Storage Power Energy storage, as a flexible resource, can effectively compensate for the shortcomings of new energy generation. Therefore, the country has continuously introduced Policy interpretation: Guidance comprehensively Driven by the national strategic goals of carbon peaking and carbon neutrality, energy storage, as an important technology and basic equipment supporting the new power systems, has become an inevitable NDRC and the National Energy Administration of Mechanical energy storage technologies such as megawatt-scale flywheel energy storage will gradually become mature, breakthroughs will be made in long-duration energy storage technologies China Energy Storage Policy Review: Under the direction of the national "Guiding Opinions on Promoting Energy Storage Technology and Industry Development" policy, the development of energy storage in China over the past five years has Demands and challenges of energy storage This paper addresses the pressing necessity to align the regulatory capacity of renewable energy sources with their inherent fluctuations across various time scales. Emphasising the pivotal role of Recent advancement in energy storage technologies and their Abstract Renewable energy



## independent energy storage and new energy storage

integration and decarbonization of world energy systems are made possible by the use of energy storage technologies. As a result, it provides Energy Storage Configuration and Benefit Evaluation Method for New In the context of increasing renewable energy penetration, energy storage configuration plays a critical role in mitigating output volatility, enhancing absorption rates, and Independent energy storage planning model At present, the main application scenarios of energy storage at home and abroad include the distributed power supply side, the user side, and the grid side, presenting a variety of forms such as independent CHINA'S ACCELERATING GROWTH IN NEW TYPE The Coverage and Intensity of Policies Continuing to Increase Technological breakthrough and industrial application of new type storage are included in the energy work of the National The participation of Independent Energy Storages in Electricity Energy storage will play an essential role in maintaining the power balance of the new power system, which is mainly based on renewable energy sources. Recently, China has been Comprehensive review of energy storage systems technologies, The applications of energy storage systems have been reviewed in the last section of this paper including general applications, energy utility applications, renewable Energy Department Pioneers New Energy Storage InitiativesThe Department of Energy's (DOE) Office of Electricity (OE) is pioneering innovations to advance a 21st century electric grid. A key component of that is the Research on the participation of independent energy storage in In the context of high-proportion new energy access and marketization, independent energy storage, mainly electrochemical energy storage, serves as a flexible regulation resource, The participation of Independent Energy Storages in Electricity Energy storage will play an essential role in maintaining the power balance of the new power system, which is mainly based on renewable energy sources. Recently, China has been Energy Department Pioneers New Energy Storage The Department of Energy's (DOE) Office of Electricity (OE) is pioneering innovations to advance a 21st century electric grid. A key component of that is the development, deployment, and utilization of bi Research on the participation of independent energy storage in In the context of high-proportion new energy access and marketization, independent energy storage, mainly electrochemical energy storage, serves as a flexible regulation resource, The Rise of Independent Energy Storage: Powering Tomorrow's Why Independent Energy Storage Is Stealing the Spotlight Imagine your smartphone battery deciding it's tired of being tethered to your charging cable. That's essentially what's happening Comprehensive Value Evaluation of Independent Energy Storage The comprehensive value evaluation of independent energy storage power station participation in auxiliary services is mainly reflected in the calculation of cost, benefit, and economic evaluation Diversity in Energy Generation and Storage Building enough battery storage to fully cover 24 hours a day, 365 days a year would require exorbitant amounts of money, leading to higher energy bills. Consequently, the Study on economic analysis and cost recovery mechanism of independent Based on the development of the electricity market in a provincial region of China, this paper designs mechanisms for independent energy storage to participate in various Dynamic partitioning method



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for independent energy storage With the increasing installed capacity of energy storage and the rapid accelerating process of electricity marketization, grid-side independent energy storage are beginning to generate profit The Ultimate Guide to Independent Energy Storage Project EPC: Let's cut to the chase: if you're Googling independent energy storage project EPC, you're probably either a project developer, an engineer, or a finance whiz trying to crack the code on Operation strategy and profitability analysis of independent It is urgent to establish market mechanisms well adapted to energy storage participation and study the operation strategy and profitability of energy storage. Energy Storage for the GridA wide array of possibilities that could realize this potential have been put forward by the science and technology community. Grid-scale storage has become a major focus for public research Capacity Compensation Mechanism Design for Energy Storage Shared energy storage plays a crucial role in facilitating the low-carbon transition, serving as a flexible resource to mitigate the volatility of renewable energy. However, the core

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