



# Electrical energy storage

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OverviewHistoryMethodsApplicationsUse casesCapacityEconomicsResearchEnergy storage is the capture of energy produced at one time for use at a later time to reduce imbalances between energy demand and energy production. A device that stores energy is generally called an accumulator or battery. Energy comes in multiple forms including radiation, chemical, gravitational potential, electrical potential, electricity, elevated temperature, latent heat and kinetic. Energy storage involves converting ene...

Electrical Energy Storage (EES) systems store electricity and convert it back to electrical energy when needed. 1 Batteries are one of the most common forms of electrical energy storage.

Energy storage allows energy to be saved for use at a later time. It helps maintain the balance between energy supply and demand, which can vary hourly, seasonally, and by location.

About Electricity StorageElectricity Storage in The United StatesEnvironmental Impacts of Electricity StorageThe electric power grid operates based on a delicate balance between supply (generation) and demand (consumer use). One way to help balance fluctuations in electricity supply and demand is to store electricity during periods of relatively high production and low demand, then release it back to the electric power grid during periods of lower product...See more on epa.gov#b\_results li.b\_ans.b\_mop.b\_mopb,#b\_results li.b\_ans.b\_nonfirsttopb{border-radius:6px;box-shadow:0 0 0 1px rgba(0,0,0,.05);margin-top:12px;margin-bottom:10px;padding:15px 19px 10px}#b\_results li.b\_ans.b\_mop.b\_mopb .b\_sideBleed{margin-left:-19px;margin-right:-19px}#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 .vrhctc,#b\_results .b\_ans.b\_vidAns

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.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,#serpv
idans.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);heig
ht:auto;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
.mc_vtvc_meta_row{color:var(--smtc-foreground-content-neutral-primary);height:var(--mai-smtc-padding-car
d-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: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

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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-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:92px;background:linear-gradient(180deg,var(--bing-smtc-background-ctrl-fade-on-i
image-stop-0) 0%,var(--mai-smtc-background-ctrl-on-image-rest) 100%)}#serpvidans.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
.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_vtvc_title{white-space:normal;display:-webkit-box;-webkit-line-clamp:2;-webkit-box-orient:vertical}#se
rpvidans.vsacf .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.vsacf
.b_module_expansion_control .b_btnContainer .b_CompactExpansion
.b_CompactExpansionBtnText{font:var(--bing-smtc-text-global-caption1-strong);color:var(--bing-smtc-foregr
ound-ctrl-neutral-primary-alt-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-ctrl-neutral-primary-alt-rest)}#serpvidans.vsacf
.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
.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
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.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 .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.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
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_
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_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
.mc_vtvc_act_sep,.mc_vtvc_fh .mc_vtvc_act{visibility:hidden}#serpvidans
.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:
0;left:0;right:0}.mc_vtvc_ht{width:100%;padding: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}.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
```

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.emptyStyleForDebuggingPurpose{top:0}.mc_vtvc_center_play{width:32px;height:32px;background-size:cover;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:none}.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%22none%22%20xmlns%3D%22http%3A%2F%2F%2F2000%2Fsvg%22%3E%0D%0A%20%20%20%20%3Crect%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%2010.1923C13.2355%209.62986%2012%2010.3524%2012%2011.4997V20.5C12%2021.6472%2013.2355%2022.3698%2014.2354%2021.8073L22.2356%2017.3073C23.2551%2016.7339%2023.2551%2015.2661%2022.2357%2014.6926L14.2354%2010.1923Z%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}.mmlist .mc_vtvc:hover .mc_vtvc_title{text-decoration:underline}.mc_vtvc_meta{box-sizing:border-box;display:inline-block;line-height:18px;position:relative;width:100%}.mc_vtvc_meta_block{bottom:0;position:absolute;width:100%}.mc_vtvc_meta_row{line-height:16px;font-size:11px;height:17px;overflow:hidden;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{position:relative}.mc_vtvc_meta_block .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{line-height:18px;padding-bottom:4px;font-weight:bold;color:#00809d;text-transform:u
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ppercase;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-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-decoration:none}.mc_vtvc_meta_pubdate{co
lor:#444;padding-bottom:3px}.mc_vtvc_meta_channel{color:#444}.mc_vtvc_meta_w,.mc_vplvc_meta_w{po
sition:relative}.mc_vtvc_meta_bg_w,.mc_vplvc_meta_bg_w{height:100%;width:100%;overflow:hidden;posit
ion:absolute;top:0}.mc_vtvc_meta_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{top:0}.empt
yStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurp
ose{top:0}.emptyStyleForDebuggingPurpose{top:0}.emptyStyleForDebuggingPurpose{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(
MAAADHKvg1AAAIVBMVEX////////////////////9/gMdvAAAACnRSTIMAETNEVWaImbv
uo4D1oAAAAB9JREFUCB1jmMoABKuaQcSqQhCxKgFGgLhNQIkpQAwA8zkLyQA16F0AAAASUVO
RK5CYII=)}.mc_bc_w{height:18px;padding:8px;text-align:right}.mc_bc{background-color:rgba(0,0,0,.75);p
adding: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}.mmgrid>div{width:197px;display:inline-block;margin-right:8px;margin-bottom:8px;box-shad
ow:0 0 0 1px
rgba(0,0,0,.05);position:relative;vertical-align:top;overflow:hidden;white-space:normal;border-radius:6px}.vs
arr .mmgrid>div,.vsarr1stbig .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}.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: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
.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;#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.vsbarr1stbig #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}.vrhc line.nhvpv .pffvi,.vrhc line.nhvpv[data-tps="S"] .pffvt,.vrhc line.nhvpv[data-tps="M"]
```

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.pffvt,.vrhc      line.nhvpv[data-tps="L"]      .pffvt{display:inline-flex}.vrhc      line.nhvpv      .vrhvc.pffv
.vrhol{display:none}.vrhc      line.nhvpv      .vrhvc.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);ga
p: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(--ma
i-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      .vrhvc.pffv      .vrhol{display:none}.hvpv.h5s      .vrhvc.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);ga
p:var(--smtc-gap-between-content-x-small);box-sizing:border-box}.pffvt{text-decoration:underline}.vrhvc
.vrhol{position:absolute;width:100%;height:35px;max-height:35px;bottom:0;left:0;padding:0;background:non
e;display:block;z-index:9}.vrhvc      .vrhol.hide,.vrhvc      .vrhol
.hide{display:none}.vrhot{white-space:nowrap;text-overflow:ellipsis;overflow:hidden;display:inline-block;po
sition: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:poi
nter}.vrhol.icons_1      .vrhot{margin-right:27px}.vrhol.icons_2      .vrhot{margin-right:49px}.vrhol.icons_3
.vrhot{margin-right:79px}.vrhol      .vrhot      nt,.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}.vrhvc
.vrhol.npb{height:36px;max-height:36px}.vrhol
.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
```

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}.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/NosrlR4amKTs1zYxWy3laZN3HRk.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}.vrhctc
.hide{display:none}.vrh_clc .vt_vp,.vrh_clc .vrhctc .vrhi,.vrh_clc .player_ol{cursor:pointer}.vrh_clc
.cico{border-radius:0}.vrhctc{border:hidden;top:0;left:0;padding:0}.vrhc.mousefollow .vrhctc,.vrhc.popout
.vrhctc{background-color:#999}.vrhctc.load
.player_ol{background:url(/rp/J_o2maogFDeUOsovPjL-ofEuxJ4.gif) center center no-repeat}.vrhc line .vrhctc
.vrhi,.vrhc.popout .vrhctc .vrhi,.vrhc.mousefollow .vrhctc
.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}.vrhctc{position:relative;top:0;left:0;display:table-row}.vrhctc
.vrhctc{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:no
ne}.vrhc.vrh_clc{cursor:pointer}a.hover-anchor{display:block;height:100%;width:100%;text-decoration:none
}.vrhstat{height:0;overflow:hidden}.vsb_tr_c{position:relative;width:100%;overflow:hidden;background:#1d
1b28;height:583px;margin-bottom:16px}.vsb_tr_c.tr_nh{height:294px}.vsb_tr_c .mm_vrc h2,.vsb_tr_c
.mm_vrc .see_more{display:none}.vsb_tr_c .mm_vrc>div{padding-bottom:20px}.vsb_tr_c
.vsb_tr_t{position:absolute;top:16px;left:160px;font:normal 16px/19px
"Arial",Helvetica,Sans-Serif;font-weight:700;color:#fff;z-index:1}.vsb_tr_c
.vsb_tr_t::after{width:17px;height:12px;display:inline-block;background-size:7px
12px;background-repeat:no-repeat;background-position-x:right;opacity:.7;content:""}.vsb_tr_c
.vsb_tr_t: hover::after{opacity:1}.vsb_tr_c .mm_vrc
.mc_vtvc{background-color:#585858;border-radius:6px}.vsb_tr_c .mm_vrc
.mc_vtvc_con_rc{border-radius:6px}.vsb_tr_c .vsb_tr_chd{position:absolute;bottom:0;width:100%}.vsb_tr_c
.onhov .mc_vtvc_ban_lo{display:none}.vsb_tr_chd .mc_vtvc_tot
.mc_vtvc_title{line-height:15px}.vsb_tr_chd .mc_vtvc_tot .mc_vtvc_meta_row,.vsb_tr_chd .mc_vtvc_tot

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.mc_vtvc_meta_row a{color:#dadada}.vsb_tr_chd .grad_b{top:30%;height:auto}.vsb_tr_chd .mc_vtvc_tot
.mc_vtvc_meta_row{font-size:12px;line-height:16px;height:16px}.vsb_tr_chd .mc_vtvc_tot
.meta_pd_content{display:none}.vsb_tr_chd .mc_vtvc_tot .mc_vtvc_title strong{font-weight:500}.vsb_tr_c
.slide video{object-fit:cover}.vsb_tr_c .mc_vtvc_th .cico{width:100%;height:100%}.vsb_tr_c
.vrhcac{width:647px;position:absolute;width:calc(42% - 160px);bottom:200px;margin:0 0 0
160px;height:auto;padding:0;pointer-events:auto}.vsb_tr_c .vrhcac .mc_vtvc_title{font:normal 30px/35px
"Arial",Helvetica,Sans-Serif;font-weight:700;height:70px;overflow:hidden;color:#fff;text-overflow:ellipsis;di
splay:-webkit-box;-webkit-box-orient:vertical;-webkit-line-clamp:2}.vsb_tr_c .vrhcac
.mc_vtvc_meta_block_area{height:50px;margin:12px 0 0 0}.vsb_tr_c .vrhcac
.mc_vtvc_meta_row{font:normal 13px/15px "Arial",Helvetica,Sans-Serif;margin:5px 0 5px
0;color:#dadada}.vsb_tr_c .mm_vrc .b_overlay .btn.bigrounded .cr>div,.vsb_tr_c .mm_vrc .b_overlay
.btn.bigrounded .cr>div:hover{background-image:url(/rp/qA6EopzJjTm5qQJvnXlrWGNP778.svg)}.vsb_tr_c
.vsb_tr_t::after{background-image:url(data:image/svg+xml,%3Csvg%20width%3D%227%22%20height%3D
%2214%22%20viewBox%3D%220%200%207%2014%22%20fill%3D%22none%22%20xmlns%3D%22http
%3A%2F%2F%2F2000%2Fsvg%22%3E%0D%0A%20%20%20%20%3Cpath%20d%3D%22M0.186925%2
01.19491L5.4643%207L0.186925%2012.8051C-0.0623082%2013.0792%20-0.0623082%2013.5214%200.18
6925%2013.7944C0.436158%2014.0685%200.838112%2014.0685%201.08628%2013.7944L6.81334%207.4
9465C6.93212%207.36515%207%207.18433%207%207C7%206.81567%206.93212%206.63485%206.8133
4%206.50535L1.08628%200.205616C0.837052%20-0.0685388%200.435097%20-0.0685388%200.186925%
200.205616C-0.0612477%200.479772%20-0.0623082%200.92192%200.186925%201.19491Z%22%20fill%
3D%22white%22%20fill-opacity%3D%220.7%22%20F%3E%0D%0A%3C%2Fsvg%3E)}.va_tt
.mm_vrc{padding:11px 2px 0 0}.va_tt .vsb_tr_t{position:relative;top:auto;left:auto;font:normal 18px/22px
"Arial",Helvetica,Sans-Serif;font-weight:400;color:#4007a2;z-index:auto}.b_dark .va_tt
.vsb_tr_t{color:#82c7ff}.va_tt .vsb_tr_tp,.va_tt .vsb_tr_tl{display:inline-block;margin-right:5px}.va_tt
.vsb_tr_chd{position:relative}.vsb_tr_c.va_tt{--va-st-padding-bottom:16px;height:auto;background-color:tran
sparent;margin-top:22px;overflow:visible;padding-bottom:var(--va-st-padding-bottom);margin-bottom:0}.va_tt
.mc_vtvc_ban_lo,.va_tt .vsb_tr_t::after,.va_tt .mc_vtvc:hover .mc_vtvc_center_play,.va_tt .vsb_tr_chd
.vt_onhv .mc_vtvc .mc_vtvc_meta{display:none}.va_tt .mc_vtvc:hover .mc_vtvc_ht,.va_tt .mc_vtvc:hover
.mc_vtvc_htb{display:table-cell}.va_tt
.mc_vtvc_htb{padding-top:50px;background:linear-gradient(360deg,rgba(0,0,0,.6) 60.35%,rgba(0,0,0,0)
100%);font-size:11px;line-height:13px}.va_tt .mc_vtvc_ht{padding:0 24px;text-shadow:0 1px 2px
rgba(0,0,0,.2)}.va_tt .mc_vtvc_center_play{bottom:52px}.va_tt .mc_vtvc:hover
.mc_vtvc_title{max-height:52px;white-space:normal;display:-webkit-box;-webkit-box-orient:vertical;-webkit-
line-clamp:4}#serpvidans .va_tt .slide{margin-right:0;vertical-align:bottom;transition:width .2s,height
.2s}#serpvidans .va_tt .slide:not(:first-child){margin-left:8px}#serpvidans .va_tt
.mm_vrc>div{padding-bottom:0}.va_tt .vsb_tr_chd .mc_vtvc
.mc_vtvc_meta{height:auto;padding:8px;color:#ddd}.va_tt .vsb_tr_chd
.mc_vtvc_th_dock{height:72px;position:absolute;bottom:0;background:linear-gradient(360deg,rgba(0,0,0,.55)
60.35%,rgba(0,0,0,0) 100%)}va_tt
.mc_vtvc_meta_row_channel{font-size:13px;line-height:15px;font-weight:500;color:#fff;white-space:nowrap;
overflow:hidden;text-overflow:ellipsis;margin-bottom:6px}.va_tt .vsb_tr_chd .mc_vtvc
.mc_vtvc_title{height:auto;font-size:11px;line-height:13px;color:#ddd;white-space:nowrap;overflow:hidden;t
```

ext-overflow:ellipsis}.va\_tt .slide .mc\_vtvc{width:100%}.va\_tt .slide video{object-fit:cover}.va\_tt .mc\_vtvc\_th .cico{width:100%;height:204px}.va\_tt .b\_overlay .btn.bigrounded{top:auto;bottom:0;margin-bottom:93px}.va\_tt .vt\_onhv .mc\_vtvc\_htb{padding-top:86px}.va\_tt .vsb\_tr\_chd .mc\_vtvc .vtmu,.va\_tt .vsb\_tr\_chd .mc\_vtvc .vtpl{bottom:6px}.va\_tt .vcmt\_ct,.va\_tt .vcmt\_ctt{display:block;margin-bottom:4px;font-size:11px}.va\_tt .vasyt::before{content:"";background:url( AAAYCAYAAADgdz34AAABRklEQVR4Ae2UT0rDQBjFX7QICtaoIOimAReiUNuV696jmx5A8AalZ/AIpbdwIT2B6wqIWYkuWgnBP7jo+D7SkcmiM4kd6KYPfjNDeHlfJt8kwEYOBXqhgENod+SGnJKQ7JFjsr3k/jmZkg/yQn7IE7lncAwjvEImRHICskKzQMdjuOZWsrcWNS7hX+dmgQurNQzxD52YBQ6s1maTb3UCtNsooTOzwI7THkXAYAD0+9narVyTR9aGtVoqpyRRqtdzNXIs7qCCMqpWgXodqNVsrrkZ/ImiimMe6g4wHLqciQx6BzOXGwn93S7QaBQJF6Uy6B28Wq3y1HKSZC6uL7PAG1wFymyskg35FY/jX899Kfkxk6vE/JFIRrhvwXJEH8r5C8Iw8kmudGyzbH037nI6Q9UnWu8i+eDnf38iamC7saVDkJG60Fv0CnB4IzftPhuMAAAAASUVO RK5CYII=) no-repeat;background-size:18px 18px;padding-right:22px}.va\_tt .vasig::before{content:"";background:url( AAAYCAYAAADgdz34AAAEsUIEQVR4Ad1UTWxUVRT+zn3vzbz5ozNtFQpRa2hDjC6qhKWICwjWTVmwMRKIMSG44W9hXIGRRKPRUMMCEySgidHEXFXjxkgJEU0ISEhEaItg0bZU7bTz99689+49nvem5SfThVt5yc3ce+ee7zvfD869wP/9o/sXm4bKxUaAfQ6bnVkt9GZNIawiuDpCmiM4MLDZwAKDmJNgJoKWGZO6ZZhPK0RHj44+O99GsG1TuRhkzJkshwMF00ROwHM6hKzhCnjaREjFBCYmMHcDWYYmJSQKgbIQgi7XIPXiEom9RKBcf1+X1gMF3USBZQjBk2sdPLY2h+6VTgJqSdYqybyVfWPGw9x4FeWxKiIhCY0FH9ZA17L2yt9vP0BQ0s2dHZJ5hxB05zReObIWvQMF/Jdv+uwMrrzMxo1g4BsNI29q42gK/J6SzGB8bH9zf4E/PqJMUyN/A79ZxVpMSHFWgKMmGGSGuTXIZBbvxi9BzYgm1+PK3vOJgQe7N4l3HsEuoFOIYht6Xu+E79+dAXTX40t1iCQodkRI2yxR6xiEpNWfjBEsVmVTy6iY/d6rO5zURmvwCcHbQTdknJe3i875FkHV6c5G4uI0dNyva46Dz0EqX6u0GFNPzRG1T78HsQxUqAYOQXQAg6+/Nsj90h34TcRIASBUUWFatWJev0xDjlqcaZngKXPt9Bcb/4IxeK7wipjU+j84sdKL96AnqqKhrsGJCcNVIKi9oUaWojKKIuo4IMEcm6k6bZogj5A9uIazVU3jjGPFNGbI7/5RkqfnYQKw4NorLnU6lGC4YohFK+nLlnVqarOB5dOAvuKgla8dakMNVyfYZBOcuAbOTIFWDsuqEO7e5+e2PsPt7BLQORY0WgVxKkjkJvmAgg6a4xLNwqVqIk/AiKSXJMAxJnVEghRIJfXoniPC hmQ1ZBNp+W5KCDlgYzmdgVqlgpqWkL91h8xoGRrbkwgNfgCrNU52RRS2YvznzsbNEJ67kGQvWbeSEktVHE9+ew3y4nlKIYIU0nrIsibSj/6x9yk7fByZj98lff68KBD7tmxJjSPHU8sAaUWUUBPFaK22uQTf9DIPfYLEy1NtZ1SaVD6PAP1A+9Dj09BmfbNjhbN0NPjqOxfzfz/G0my2Onf1WCyDMzYIFzeQVWscHsGtJz15N1astmNL87Gbcna32bGqffAk5KbCQ5BdKzTYvEV8CXi7fhqSTG3BiXA02i+x7puwRcikIoOtXObp5idKDr4HVAsLjI8SzY5y8yyHYhLGLCuzLk9GzBqkNg0hv34noh5/YTFwnIjdOdmC8JY8/E+YDFN95CBYlx+Gu3U/XC24PK/yRddvQx/+D2pWSRvdyhg1s12gg59Chl9mDKW1MzAO3cE1rWvobr6oHKPin4N8QocCUAkT0RIbGZnoCd+I3NN8IwicqRdTSQqotNtBMgFw6qQH1JufOdcRnz7tPRzBfz3JehZI8BifODDeHUZNXAjFRtUNVipGyilNiWkmse6MvGjoaxnNTyN0NFV7172S3sstxML9nxBRL7I00c+my8BhmvwqZRJVovMKoStCDgQsQV+xbNq1OmYoZLo6PzeGi+fwFJbz1IhJBeawAAAABJRU5ErkJggg==) no-repeat;background-size:18px 18px;padding-right:22px}.va\_tt .vastt::before{content:"";background:url( AAAMCAYAAABWdVznAAAA90IEQVR4AZWQu2sCQRDGJyYHCQdqPEKqShr7NOZFyvQJi1YKYII1irY+ieoiKXYKZaniI3WIoqg4AMfhaAcCMJ93q2vwwXODz6WnZnf7swQEuu0w6D1Wn7y4cOJO/sLL8cH8ps1ernCdYCueCoJm03iAyaLGWa3SszstDFg028BoBvnfdw4IW+r+hTgtLVUX67ZcBcjCKV0HEl/h0epT2cgT8IBAljt+KNNsHMLU3yhUUebH+xGwWx+JRjOKdutUk+53wZVCPLGvnj/f2ZCFchXh6RjDwYS1dnFLHo8XvZIMNVuE7PyD1SScATcHyqhuNevQt8H62BZHiaf6ZtXqegAAAABJRU5ErkJggg==)}

```
no-repeat;background-size:contain;padding-right:20px}.va_tt
.vasfb::before{content:"";background:url(/rp/zvtkyPveEhrXqHA-euzAa983fpQ.png)
no-repeat;background-size:contain;padding-right:20px}.vcmt_ckt.vasyt::before{background-size:15px
15px;padding-right:19px}.vcmt_ckt.vasig::before{background-size:15px
15px;padding-right:19px}.vcmt_ckt.vastt::before{background-size:contain;padding-right:17px}.vcmt_ckt.vasf
b::before{padding-right:17px}.mm_vrc{padding:24px 32px}@media screen and
(max-width:1022px){.mm_vrc{margin:0}}@media screen and
(max-width:766px){.mm_vrc{margin:0}}.mm_vrcc{padding:0 0 32px 0;margin-bottom:0}.mm_vrcc
h2{padding-bottom:20px}.mm_vrcc h2 a{font-family:"Segoe
UI",Arial,Helvetica;font-size:20px;color:#000;line-height:18px}.mm_vrcc .b_overlay
.btn{z-index:3}.mm_vrcc .vrhc{z-index:2}.mm_vrcc .mc_vtvc_th .cico{padding-bottom:0}#dg_c
.mm_vrc,#dg_c .mm_vrcc{padding:8px 16px 0 16px}#dg_c .mm_vrcc .mc_vtvc{width:100%}#dg_c
.mm_vrcc a:hover{text-decoration:underline}.isvctrl .mm_vrcc
.slide{overflow:visible}.mm_vrc{padding:16px 100px 0 160px}.mm_vrc .b_overlay
.btn.bigrounded.next{right:-44px}.mm_vrc .b_overlay .btn.bigrounded.prev{left:-44px}.mm_vrc .b_overlay
.btn.bigrounded .cr>div,.mm_vrc .b_overlay .btn.bigrounded
.cr>div:hover{box-shadow:none;border-radius:0;margin:0;background-position:16px
9px;background-size:12px
22px;background-color:transparent;background-image:url(/rp/rKVnxf6wkxbxI0DBa2Au3IVC5Sog.svg)}.mm_
vrc .b_overlay .btn.bigrounded .cr>div{opacity:.7}.mm_vrc .b_overlay .btn.bigrounded
.cr>div:hover{opacity:1}.mm_vrc
a{font-family:"Arial",Helvetica,Sans-Serif;font-style:normal;font-weight:500;color:#111}.mm_vrc
h2{display:inline-block;padding-bottom:16px}.mm_vrc>div{position:relative;padding-bottom:32px}.mm_vrc
.see_more{position:absolute;right:0;top:3px}.mm_vrc
.see_more>a{font-family:"Arial",Helvetica,Sans-Serif;font-style:normal;font-weight:normal;font-size:16px;li
ne-height:18px;color:#000}#vsb_more{padding:16px 0 4px 160px;color:#111}#vsb_vid_cat .mm_vrc h2
a::after{display:inline-block;margin-left:12px;content:"";background-image:url(/rp/rKVnxf6wkxbxI0DBa2Au3
IVC5Sog.svg);background-size:7px 14px;width:7px;height:14px;opacity:.7}#vsb_vid_cat .mm_vrc h2
a:hover::after{opacity:1}.mm_vrc .mm_vrc_sub{display:inline-block;margin-left:24px}.mm_vrc
.b_hList{position:absolute;height:20px;top:3px;overflow:hidden}.mm_vrc
.b_hList>li{padding-right:24px;padding-bottom:0}.mm_vrc .b_hList a{font:normal 13px/20px
"Arial",Helvetica,Sans-Serif;color:#111}.mm_vrc .mc_vtvc_tot .mmsts
.mc_vtvc_meta{display:none}.b_overlay
.btn.rounded{position:absolute;cursor:pointer;z-index:1;-moz-user-select:none;-khtml-user-select:none;-webki
t-user-select:none;-o-user-select:none;-ms-user-select:none;user-select:none}.b_overlay
.btn.rounded,.b_overlay .btn.rounded .bg,.b_overlay .btn.rounded .cr,.b_overlay .btn.rounded
.cr>div,.b_overlay .btn.rounded .vcac>div{border-radius:50%}.b_overlay .btn.rounded
.vcac{height:0}.b_overlay .btn.rounded{height:32px;width:32px;top:50%;margin-top:-16px}.b_overlay
.btn.rounded .bg,.b_overlay .btn.rounded:hover .bg{opacity:0}.b_overlay .btn.rtl.rounded
.cr{direction:ltr}.b_overlay .btn.hidden.rounded .cr,.b_overlay .btn.disabled.rounded
.cr{visibility:hidden}.b_overlay .btn.rounded .cr>div{border:1px solid #ecec;box-shadow:0 2px 3px 0
rgba(0,0,0,.1);height:30px;width:30px;overflow:hidden;background-image:none;background-color:#fff}.b_ov
```

```

erlay .btn.rounded .cr>div:hover{box-shadow:0 2px 4px 1px rgba(0,0,0,.14)}.b_overlay .btn.rounded
.cr>div:after{bottom:5px;background-color:#fff;transform-origin:-430px
0;display:inline-block;transform:scale(.5);position:relative}.b_overlay .btn.rounded
.cr>div:hover:after{transform-origin:-514px 0}.b_overlay .btn.ltr.rounded .cr>div:after{right:5px}.b_overlay
.btn.rtl.rounded .cr>div:after{left:5px}.b_overlay .btn.prev.ltr.rounded .cr,.b_overlay .btn.next.rtl.rounded
.cr{transform:scaleX(-1)}body .b_overlay .btn.rounded.next{right:-12px}body .b_overlay
.btn.rounded.prev{left:-13px}.ra_car_container .b_overlay .btn.prev.ltr.rounded .cr>div,.ra_car_container
.b_overlay .btn.next.rtl.rounded .cr>div{transform:unset}.ra_car_container .b_overlay .btn.rounded
.cr>div{background-position:0;border:unset}.ra_car_container .b_overlay .btn.rounded
.cr>div:after{content:unset}@media screen and (forced-colors:active){.b_overlay .btn.rounded.hidden
*,.b_overlay .btn.rounded.disabled *{background:none}.b_overlay .btn.rounded.hidden,.b_overlay
.btn.rounded.disabled{background:none}}.b_overlay .btn.rounded
.cr>div:after{content:url(/rp/EX_mgILPdYtFnI-37m1pZn5YKII.png)}.vsb_tr_chd .mc_vtvc .mc_vtvc_meta {
padding: 10px 10px 10px 10px; } .vsb_tr_chd .mc_vtvc .mc_vtvc_meta_w { height: 190px; margin-top: -0px;
} .vsb_tr_chd .mc_vtvc .mc_vtvc_title { height: 150px; line-height: 15px; margin-bottom: 0px; margin-top:
0px; } .vsb_tr_chd .mc_vtvc .mc_vtvc_meta_block_area { height: 20px; } .vsb_tr_chd .mc_vtvc .vtmu,
.vsb_tr_chd .mc_vtvc .vtpl { bottom: 198px; } .vsb_tr_chd .mc_vtvc_th_dock { height: 190px; } .vsb_tr_chd
.mc_vtvc_th_dock { height: 60px; } .tr_bt .mc_vtvc_th
img{height:auto;width:100%}.grad_b{position:absolute;width:100%;top:30%;bottom:0%;background:linear-
gradient(180deg,rgba(48,44,39,0) 0%,#302c27
100%)}.mc_vtvc_th_dock{width:100%;background:#302c27}.mc_vtvc_tot
.mc_vtvc_th{background-color:transparent}.vsadc .grad_b{top:81.8%}.mc_vtvc_tot
.mc_vtvc_meta{line-height:15px;position:absolute;bottom:0%;background:transparent}.mc_vtvc_tot
.mc_vtvc_meta_row{line-height:16px;font-size:12px;height:16px}.mc_vtvc_tot
.mc_vtvc_meta_row,.mc_vtvc_tot .mc_vtvc_meta_row a{color:#dadada}.mc_vtvc_tot
.mc_vtvc_title,.mc_vtvc_tot .mc_vtvc_title a{color:#fff}.vsadc .mc_vtvc_tot
.mc_vtvc_title{line-height:18px}.vsadc .mc_vtvc_tot .mc_vtvc_meta_row,.vsadc .mc_vtvc_tot
.mc_vtvc_meta_row a{color:rgba(255,255,255,.7)}.vsadc
.mc_vtvc_meta_pubdate{padding-bottom:2px}.vtdc_default{background:#302c27}.vtdc_default_g{backgrou
nd:linear-gradient(180deg,rgba(48,2,39,0) 0%,#302c27
100%)}.vtdc_black{background:#111}.vtdc_black_g{background:linear-gradient(180deg,rgba(17,17,17,0)
0%,#111
100%)}.vtdc_blue{background:#3a4e74}.vtdc_blue_g{background:linear-gradient(180deg,rgba(58,78,116,0)
0%,#3a4e74
100%)}.vtdc_brown{background:#69423d}.vtdc_brown_g{background:linear-gradient(180deg,rgba(105,66,6
1,0) 0%,#69423d
100%)}.vtdc_grey{background:#464646}.vtdc_grey_g{background:linear-gradient(180deg,rgba(70,70,70,0)
0%,#464646
100%)}.vtdc_green{background:#324f32}.vtdc_green_g{background:linear-gradient(180deg,rgba(50,79,50,0
) 0%,#324f32
100%)}.vtdc_orange{background:#8c5400}.vtdc_orange_g{background:linear-gradient(180deg,rgba(140,84,
0,0) 0%,#8c5400

```

```
100%)).vtdc_pink{background:#a3394b}.vtdc_pink_g{background:linear-gradient(180deg,rgba(163,57,75,0)
0% ,#a3394b
100%)).vtdc_purple{background:#774077}.vtdc_purple_g{background:linear-gradient(180deg,rgba(119,64,1
19,0)
0% ,#774077
100%)).vtdc_red{background:#811515}.vtdc_red_g{background:linear-gradient(180deg,rgba(129,21,21,0)
0% ,#811515
100%)).vtdc_white{background:#464646}.vtdc_white_g{background:linear-gradient(180deg,rgba(70,70,70,0
)
0% ,#464646
100%)).vtdc_yellow{background:#755b00}.vtdc_yellow_g{background:linear-gradient(180deg,rgba(117,91,
0,0)
0% ,#755b00
100%)).vtdc_teal{background:#256868}.vtdc_teal_g{background:linear-gradient(180deg,rgba(37,104,104,0)
0% ,#256868
100%)).cipt,.cipg,.cipa,.cipl,.ciptr,.ciplr{display:inline-block}.cipa,.cipl,.ciplr{cursor:pointer}.vab{vertical-ali
gn:bottom}.vam{vertical-align:middle}.vat{vertical-align:top}.vabl{vertical-align:baseline}.vatt{vertical-ali
gn:text-top;border-radius:0}.vatb{vertical-align:text-bottom}
evronDown12,
evronUp12{background:url(/rp/QKlTrqL25sGDqfRYQjkMWJWDeG8.png)
no-repeat;background-size:494px 58px;width:12px;height:12px} evronDown12{background-position:-372px
0} evronUp12{background-position:-372px -14px}@media(prefers-color-scheme:dark){#bpage.b_med
evronDown12{background-position:-386px 0}#bpage.b_med evronUp12{background-position:-386px
-14px}}#bpage.b_drk evronDown12{background-position:-386px 0}#bpage.b_drk
evronUp12{background-position:-386px -14px}.cipt,.cipl{margin-right:10px}.cipt .cico,.cipl .cico,.ciptr
.cico,.ciplr
.cico{border-radius:0}.b_action>.cipt,.b_action>.cipl{float:left}.ciptr,.ciplr{margin-left:10px}.sw_play{heigh
t:16px;width:16px}:not(.dc_aud_wrp)>.sw_play{background-image:url(
goAAAANSUgAAACAAAAAgCAMAABEpIrGAAAAaVBMVEUAAAAAD58AFaQAE6UAFKUA
E6QAFKUAQAEqYAD58AE6QAE6UAFKQAEqUAD6QAE6MAE6QAD6cAE6QAFaQAFKQAEqQAFKUA
EqQAFKUAQAEqIAFKMAEQMAE6MAD58AE6UAE6UAE6IAFKYAFKYAE6MaDJ//AAAAI3RSTIMAEG
Cfz+//XyCQj79vMEDfIKAWoK/vYL9gcHDPMM9QkK+fnzHYYSkAAAEVSURBVHgBdZMFkuwwEPPV
k/ULx8nSMN7/jh/X1dUDKgjpyaTIZavqLUF6q2rTo5o24aoaRVkH9MNokk1DD3QW8AzV7M/zAtlDNGBy
qKA5k9+d58OkKPukZFjmU0/0Qf6PdeXGVcDu3wBQphcXpxH+vlioyhtyHRwLrWQeICCEzHyZvunlBmLI
mo0WtsEQQnZU2jMFQwg5cFTCGiGEGF8CBUMMGReGdCpvnG/xaT7Ennc3RFyaOMZlOu7LXLF2Q8GL
1tSyROMGx3/O0aSzH1bEyznOUKYZcC/C+XVh2nJT6Yk+yd7giz3wV/LstS8NfvgTPCN0qVkofAk8A+th
MsnehzXQmqLmBVdqHXfZ97JPkPa3ldP6DeOGDIAP873EAAAAAEIFTkSuQmCC);background-size:16px
16px}#slideexp0_BAC800 .slide { width: 94px; margin-right: 20px; }#slideexp0_BAC800c .b_slidebar .slide
{ border-radius: 6px; }#slideexp0_BAC800 .slide:last-child { margin-right: 1px; }.b_sldrp
.slide{box-shadow:0 0 0 1px rgba(0,0,0,.05)}.b_cards .cico,.b_slidebar .slide
.cico{border-radius:0}#b_content .b_wpt_container .l_ecrd_imgsetgrid.l_ecrd_imgsetgrid_actionlink
.l_ecrd_imgsetgrid_item .cico{border-radius:0!important}.b_sldrp .slide.see_more{box-shadow:0 0 0 0
rgba(0,0,0,0)}.b_sldrp .slide.see_more .carousel_seemore{border:0}.b_sldrp
.slide.see_more: hover{box-shadow:0 0 0 0 rgba(0,0,0,0)}#slideexp0_BAC800c { margin: -4px; }
#slideexp0_BAC800c .b_viewport { padding: 4px 1px 4px 1px; margin: 0 3px; }#slideexp0_BAC800c
.b_slidebar .slide[data-mini="1"] { display:none; }Videos of Electrical Energy StorageWatch video4:37How
```



# Electrical energy storage

i-smtc-padding-card-default)}.rcimgcol .b\_imgSet .b\_hList .cico a{display:flex;outline-offset:-2px}.rcimgcol .b\_hList>li{position:relative;padding-bottom:0}.rcimgcol .b\_hList>li .iacf\_smol{pointer-events:none;border-top-right-radius:var(--mai-smtc-corner-card-default);border-bottom-right-radius:var(--mai-smtc-corner-card-default);white-space:normal}.rcimgcol .b\_hList .cico{margin-bottom:0}.iacf\_smol{display:flex;justify-content:center;align-items:center;gap:var(--smtc-gap-between-content-xx-small);width:100%;height:100%;background:rgba(0,0,0,.6);position:absolute;left:0;top:0;color:var(--mai-smtc-foreground-ctrl-on-image-rest);font:var(--bing-smtc-text-global-body2-strong);flex-wrap:wrap;align-content:center;text-align:center}.iacf\_smol:hover{text-decoration:underline}.iacfmit[data-nohov].iacfimgc .cico img{transform:none}Center for Sustainable SystemsU.S. Grid Energy Storage Factsheet - Center for Sustainable SystemsSee MoreElectrical Energy Storage (EES) systems store electricity and convert it back to electrical energy when needed. 1 Batteries are one of the most common forms of electrical energy storage.

Energy storage is the capturing and holding of energy in reserve for later use. Energy storage solutions for electricity generation include pumped-hydro storage, batteries, flywheels, ...

An energy storage system (ESS) for electricity generation uses electricity (or some other energy source, such as solar-thermal energy) to charge an energy storage system or device, which is discharged to ...

Details technologies that can be used to store electricity so it can be used at times when demand exceeds generation, which helps utilities operate more effectively, reduce brownouts, and ...

One way of ensuring continuous and sufficient access to electricity is to store energy when it is in surplus and feed it into the grid when there is an extra need for electricity.

Energy storage is the capture of energy produced at one time for use at a later time [1] to reduce imbalances between energy demand and energy production. A device that stores energy is generally ...

The Division advances research to identify safe, low-cost, and earth-abundant elements for cost-effective long-duration energy storage. OE's development of innovative tools improves storage ...

Electrical energy storage based on Zn-air concepts is experiencing increasing interest for applications ranging from consumer electronics to automotive and grid storage, owing to their high energy ...

By storing energy when the price of electricity is low and discharging that energy later during periods of high demand, energy storage can reduce costs for utilities and save families and businesses money.

Web: <https://marmotresceramics.es>

