

Überbauung am Netzanschlusspunkt

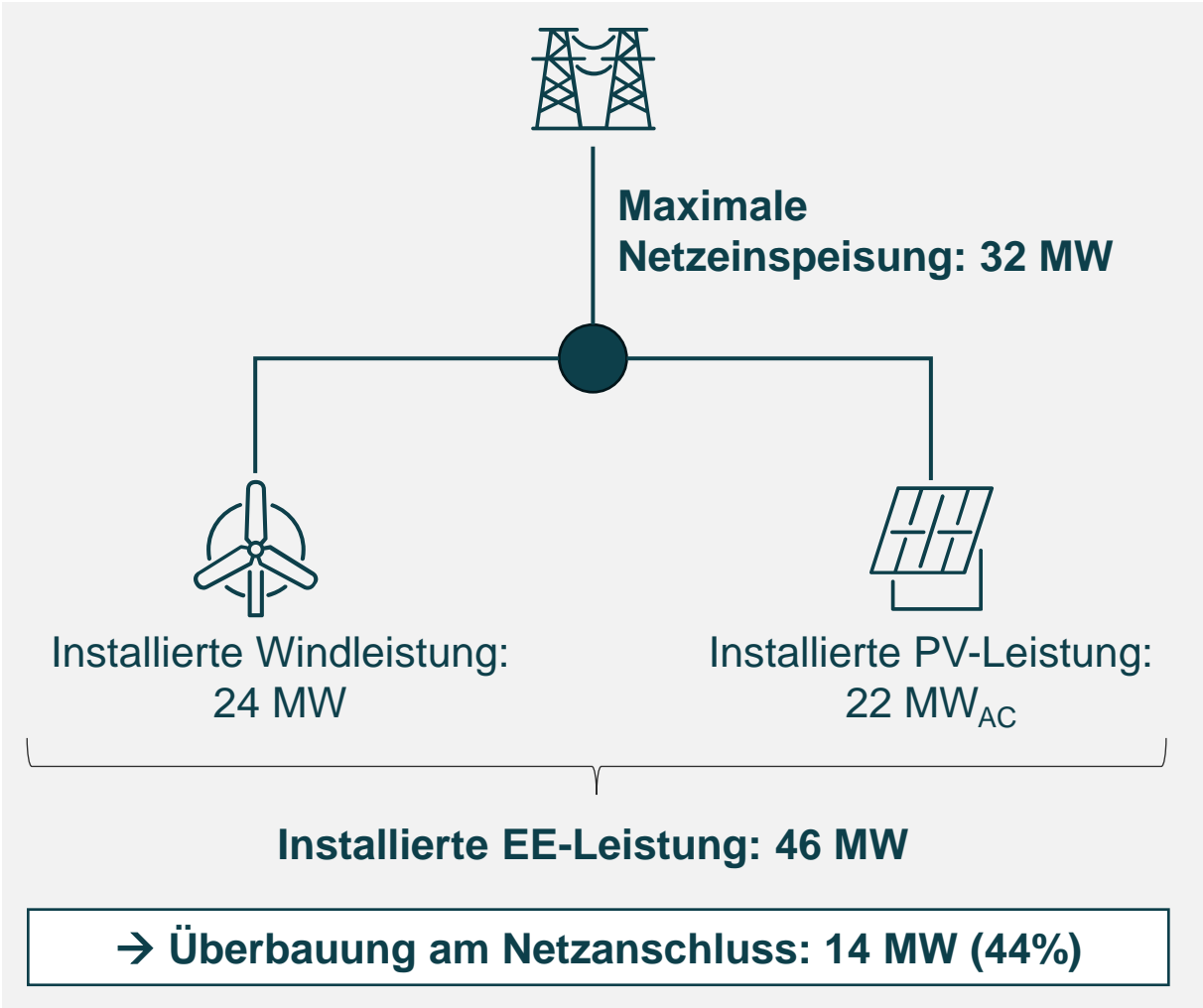
Ulrike Gunnemann
Head of Storage & Hybrids, BayWa r.e.





Effiziente Ausnutzung von Netzanschlüssen durch “Überbauung”

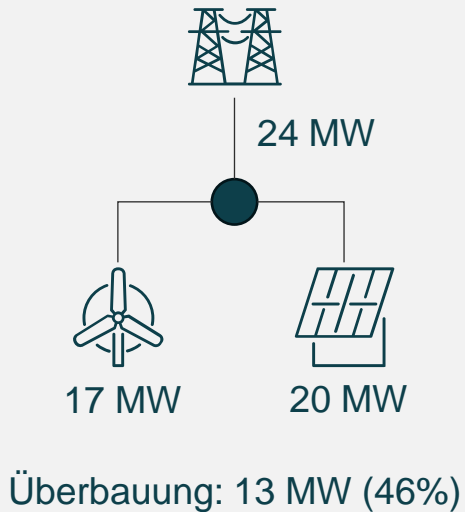
“Überbauung”:
Installierte Erzeugungs-/Speicherleistung
>
verfügbare Netzanschlusskapazität





Beispiel: Wind-PV-Hybridprojekt in Norddeutschland

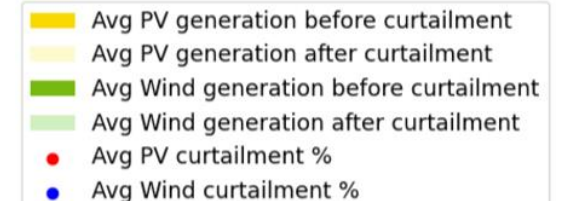
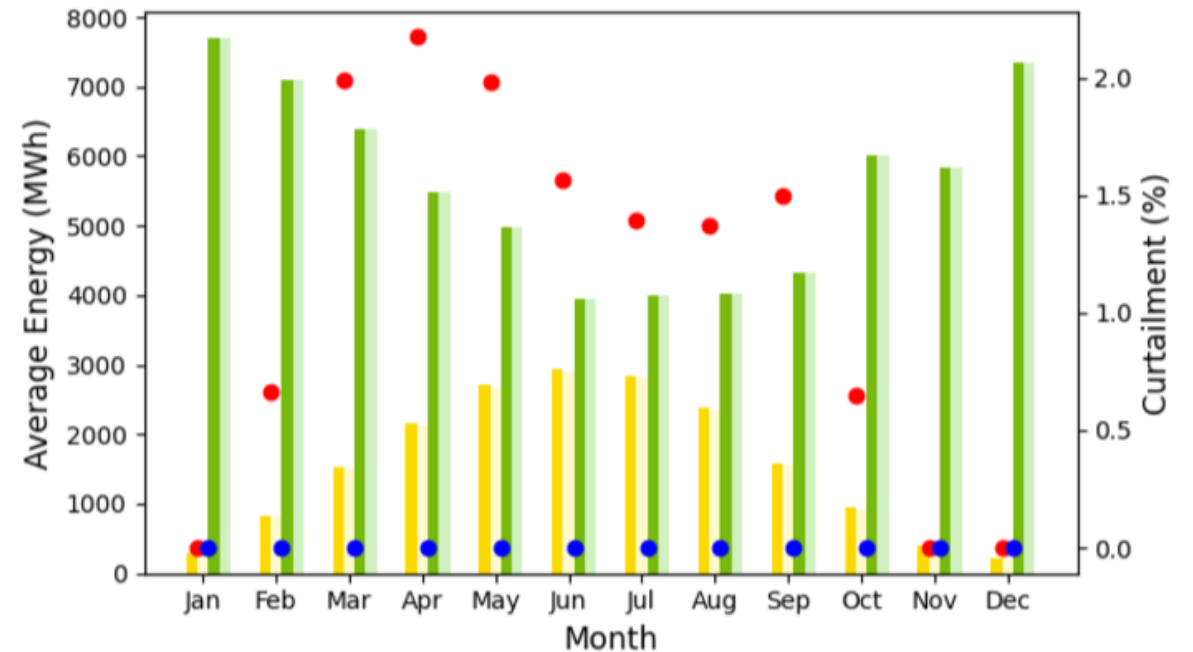
Layout:



- Wind hat Vorrang bei der Einspeisung
- Hybrid-Parkcontroller stellt sicher, dass Netzanschlusskapazität nicht überschritten wird

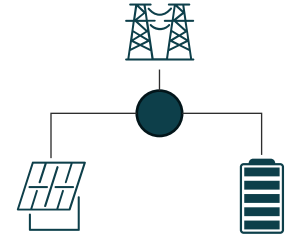
- **Stromerzeugung aus Wind und Sonne ist stark komplementär.**
- **Kapazität des Netzanschlusses wird deutlich effizienter genutzt.**
- **PV-Abregelung liegt bei unter 2%.**

Monatliche Wind- & Solarstromerzeugung [MWh] sowie PV-Abregelung [%] (Durchschnitt 2013-2022)





Beispiel PV-Speicher Hybrid: durch das komplementäre Zusammenspiel von PV und Speicher im Betrieb wird die Auslastung des Netzanschlusses maximiert.



1:1:1 Dimensionierung, PV hat Vorrang bei der Einspeisung

Durchschnittliche Auslastung des Netzanschlusses bei einem PV-Speicher Hybrids:

Auslastung durch PV:

| Tageszeit | Auslastung durch PV: | | | | | | | | | | | |
|-----------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 0 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 1 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 2 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 3 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 4 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 5 | 0% | 0% | 0% | 0% | 1% | 5% | 5% | 1% | 0% | 0% | 0% | 0% |
| 6 | 0% | 0% | 0% | 4% | 11% | 18% | 19% | 11% | 3% | 0% | 0% | 0% |
| 7 | 0% | 0% | 5% | 18% | 24% | 35% | 39% | 30% | 15% | 4% | 0% | 0% |
| 8 | 0% | 4% | 21% | 32% | 35% | 49% | 57% | 46% | 27% | 16% | 4% | 0% |
| 9 | 4% | 17% | 37% | 42% | 42% | 60% | 72% | 62% | 39% | 24% | 12% | 6% |
| 10 | 10% | 22% | 48% | 48% | 43% | 63% | 73% | 62% | 35% | 27% | 15% | 11% |
| 11 | 13% | 25% | 43% | 50% | 44% | 52% | 75% | 57% | 30% | 22% | 16% | 11% |
| 12 | 12% | 24% | 48% | 49% | 40% | 53% | 69% | 60% | 34% | 23% | 13% | 10% |
| 13 | 10% | 21% | 41% | 47% | 47% | 41% | 60% | 61% | 38% | 28% | 17% | 9% |
| 14 | 7% | 23% | 41% | 43% | 48% | 47% | 58% | 56% | 36% | 26% | 11% | 6% |
| 15 | 2% | 14% | 28% | 38% | 39% | 45% | 56% | 51% | 34% | 17% | 4% | 1% |
| 16 | 0% | 4% | 18% | 20% | 28% | 41% | 41% | 39% | 23% | 7% | 0% | 0% |
| 17 | 0% | 0% | 4% | 10% | 16% | 26% | 27% | 21% | 8% | 0% | 0% | 0% |
| 18 | 0% | 0% | 0% | 1% | 6% | 11% | 12% | 7% | 0% | 0% | 0% | 0% |
| 19 | 0% | 0% | 0% | 0% | 0% | 1% | 3% | 0% | 0% | 0% | 0% | 0% |
| 20 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 21 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 22 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 23 | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

Auslastung durch Speicher:

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|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 45% | 38% | 49% | 46% | 36% | 45% | 41% | 38% | 39% | 46% | 38% | 42% |
| 48% | 41% | 47% | 45% | 36% | 50% | 48% | 38% | 39% | 45% | 43% | 44% |
| 50% | 41% | 54% | 45% | 38% | 46% | 41% | 44% | 44% | 48% | 41% | 42% |
| 48% | 42% | 47% | 47% | 39% | 49% | 50% | 41% | 41% | 45% | 38% | 47% |
| 46% | 40% | 38% | 28% | 32% | 24% | 18% | 23% | 26% | 37% | 50% | 44% |
| 40% | 41% | 47% | 38% | 38% | 36% | 24% | 35% | 38% | 47% | 47% | 39% |
| 40% | 49% | 51% | 56% | 49% | 37% | 48% | 44% | 58% | 56% | 50% | 47% |
| 68% | 79% | 52% | 31% | 36% | 29% | 27% | 26% | 44% | 48% | 65% | 61% |
| 49% | 43% | 30% | 22% | 30% | 14% | 14% | 14% | 24% | 40% | 58% | 54% |
| 48% | 41% | 22% | 25% | 24% | 15% | 12% | 13% | 24% | 29% | 45% | 44% |
| 42% | 37% | 19% | 20% | 25% | 13% | 12% | 8% | 22% | 34% | 34% | 50% |
| 40% | 31% | 17% | 20% | 24% | 11% | 8% | 11% | 24% | 28% | 34% | 41% |
| 39% | 43% | 29% | 21% | 25% | 23% | 11% | 22% | 28% | 40% | 36% | 48% |
| 45% | 38% | 25% | 25% | 26% | 18% | 12% | 19% | 26% | 38% | 38% | 47% |
| 35% | 38% | 27% | 23% | 26% | 17% | 13% | 20% | 29% | 41% | 36% | 47% |
| 37% | 43% | 27% | 20% | 29% | 19% | 18% | 24% | 32% | 40% | 50% | 53% |
| 40% | 36% | 43% | 43% | 39% | 28% | 32% | 33% | 32% | 41% | 53% | 50% |
| 52% | 58% | 46% | 31% | 37% | 33% | 24% | 30% | 45% | 40% | 60% | 59% |
| 55% | 61% | 57% | 49% | 51% | 42% | 33% | 38% | 57% | 69% | 58% | 57% |
| 43% | 39% | 64% | 62% | 58% | 49% | 44% | 53% | 61% | 49% | 50% | 44% |
| 22% | 31% | 49% | 48% | 60% | 45% | 59% | 60% | 39% | 19% | 32% | 33% |
| 25% | 9% | 26% | 26% | 24% | 41% | 43% | 26% | 19% | 17% | 20% | 25% |
| 21% | 13% | 16% | 14% | 9% | 25% | 12% | 14% | 9% | 6% | 20% | 31% |
| 12% | 17% | 8% | 28% | 24% | 29% | 13% | 11% | 21% | 23% | 19% | 22% |

Gesamtauslastung Netzanschluss:

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| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 45% | 38% | 49% | 46% | 36% | 45% | 41% | 38% | 39% | 46% | 38% | 42% |
| 48% | 41% | 47% | 45% | 36% | 50% | 48% | 38% | 39% | 45% | 43% | 44% |
| 50% | 41% | 54% | 45% | 38% | 46% | 41% | 44% | 44% | 48% | 41% | 42% |
| 48% | 42% | 47% | 47% | 39% | 49% | 50% | 41% | 41% | 45% | 38% | 47% |
| 46% | 40% | 38% | 28% | 32% | 24% | 18% | 23% | 26% | 37% | 50% | 44% |
| 40% | 41% | 47% | 38% | 40% | 41% | 30% | 36% | 38% | 47% | 47% | 39% |
| 40% | 49% | 51% | 60% | 60% | 55% | 67% | 55% | 60% | 56% | 50% | 47% |
| 68% | 79% | 58% | 48% | 60% | 64% | 66% | 56% | 59% | 52% | 65% | 61% |
| 49% | 47% | 50% | 54% | 65% | 64% | 71% | 60% | 51% | 55% | 62% | 54% |
| 51% | 58% | 59% | 67% | 66% | 75% | 85% | 75% | 64% | 53% | 58% | 50% |
| 52% | 59% | 66% | 69% | 68% | 76% | 84% | 70% | 57% | 62% | 49% | 61% |
| 53% | 57% | 60% | 70% | 68% | 63% | 83% | 68% | 54% | 51% | 50% | 52% |
| 50% | 66% | 76% | 70% | 65% | 76% | 80% | 82% | 62% | 63% | 49% | 59% |
| 55% | 60% | 66% | 72% | 74% | 58% | 73% | 81% | 64% | 66% | 54% | 55% |
| 41% | 61% | 68% | 66% | 74% | 64% | 71% | 77% | 65% | 67% | 47% | 53% |
| 38% | 56% | 55% | 58% | 68% | 64% | 74% | 75% | 66% | 58% | 54% | 54% |
| 40% | 41% | 61% | 63% | 67% | 69% | 73% | 72% | 55% | 48% | 53% | 50% |
| 52% | 58% | 50% | 41% | 54% | 59% | 50% | 51% | 52% | 40% | 60% | 59% |
| 55% | 61% | 57% | 50% | 57% | 52% | 45% | 45% | 58% | 69% | 58% | 57% |
| 43% | 39% | 64% | 62% | 58% | 49% | 44% | 53% | 61% | 49% | 50% | 44% |
| 22% | 31% | 49% | 48% | 60% | 45% | 59% | 60% | 39% | 19% | 32% | 33% |
| 25% | 9% | 26% | 26% | 24% | 41% | 43% | 26% | 19% | 17% | 20% | 25% |
| 21% | 13% | 16% | 14% | 9% | 25% | 12% | 14% | 9% | 6% | 20% | 31% |
| 12% | 17% | 8% | 28% | 24% | 29% | 13% | 11% | 21% | 23% | 19% | 22% |



Die Überbauung von Netzanschlüssen bringt Vorteile für alle.

Benefits für das Energiesystem

- Effiziente Nutzung knapper Netzanschlüsse
- Schnellerer Ausbau von erneuerbaren Energien & Speicherprojekten
- Geringere Netzinfrastrukturkosten

Benefits für Projektentwickler & Anlageneigentümer

- Netzzugang
- Kostenersparnisse Netzinfrastruktur
- Kostenersparnisse in der Betriebsführung



Ulrike Gunnemann

Head of Storage & Hybrids