CEE Data Centers Emerge as Europe's Next Growth Frontier

Executive Summary

Central and Eastern Europe has emerged as Europe's primary growth corridor for data center investment. This report examines the region's trajectory across six markets, providing intelligence for investors, developers, and corporate occupiers evaluating CEE opportunities.

Key Findings:

- **Market Scale:** CEE data center construction market reached $652 million in 2024, projected to grow to $1.33 billion by 2029 (12.67% CAGR), outpacing most Western European markets.
- **Poland Dominates:** With ~180 MW operational capacity representing 70-80% of regional total, Poland hosts CEE's only hyperscaler cloud regions (Microsoft Azure, Google Cloud) backed by $2.5+ billion in committed investment.
- **Record Capital Flows:** Over €5 billion in disclosed transactions 2024-2025, including Vantage's €2.5B partnership, GIC's €1.4B platform investment, and multiple syndicated financings exceeding €1 billion.
- **Grid Constraints Reshaping Development:** Warsaw's available connection capacity fell 41% (2022-2024), driving expansion to secondary cities and on-site generation solutions across the region.
- **Emerging Markets:** Romania leads growth rates (20.6% CAGR to 2030) with hyperscale ambitions; Baltic states achieved EU grid synchronisation (February 2025), eliminating Russian energy dependence.
- **Western Ukraine:** Long-horizon opportunity (2028+) with DFC/MIGA risk mitigation instruments available; requires patient capital and phased engagement strategy.

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Central and Eastern Europe (CEE)

CEE has reached an inflection point in the global data center landscape. As traditional Western European hubs face severe constraints – **power grid limitations in London**, regulatory moratoria in markets like Amsterdam and Dublin, and land scarcity across FLAP-D (Frankfurt, London, Amsterdam, Paris, Dublin) – investors and hyperscalers are redirecting capital eastward[1]. Poland now hosts the region's first Microsoft and Google cloud availability zones, anchored by over **$2.5 billion in hyperscaler investment** since 2020[2][3]. The broader CEE data center construction market, valued around **$652 million in 2023**, is projected to reach **$1.33 billion by 2029** (12.7% CAGR), outpacing many mature European markets[4]. For developers, investors, and advisors, CEE represents not just an alternative to constrained Western hubs but a strategic opportunity to participate in Europe's next major data center growth cycle.

Several converging forces drive this momentum. Explosive demand for AI infrastructure has pushed global hyperscaler capital expenditures to unprecedented levels – on track for **$300 billion in 2025** across Amazon, Google, Microsoft, and Meta[5]. At the same time, data sovereignty laws (GDPR and forthcoming EU regulations) are compelling in-region processing and cloud zones, boosting demand for local capacity. CEE offers what Western Europe increasingly cannot: available land, competitive power costs, skilled labor pools, and **grid headroom for multi-megawatt deployments**[6]. In Poland, for example, the national grid operator PSE has earmarked **1,200 MW of capacity** exclusively for data center development through 2034[7] – a clear signal of government commitment to cultivating this sector.

Global Context: Western Constraints and New Horizons

The shifting geography of data center investment sets the stage. The global data center market's annual revenue approached **$350–390 billion in 2024**, with projections of $650–700 billion by 2030[8]. Europe's share of this is growing, but its traditional hubs are running into roadblocks. Total operational capacity across Europe hit **10.3 GW in H1 2025** (21% YoY increase)[9], yet much of that growth has moved outside FLAP-D core markets due to policy and infrastructure limits:

- **Power and Land Constraints in FLAP-D:** Frankfurt, the largest European market (over 60% of German capacity), now faces strict sustainability rules – including a *50% renewable energy mandate from 2024* and escalating waste-heat reuse requirements for new facilities[10]. London's key data center clusters (Docklands and Slough) have effectively maxed out their power allocation; parts of West London report no new electric capacity until 2035 without major grid upgrades[1]. Amsterdam's government in 2022 imposed a nine-month moratorium on permits for hyperscale campuses over 10 hectares/70 MW[10]. Dublin has effectively halted large new projects after local authorities rejected a proposed Google data center in

2024, citing grid strain[10]. *Land prices* in established hubs have also soared – values in Slough (outside London) jumped **40%+ since 2019**, fundamentally altering project economics[1].

- **Secondary Markets and Nordics Rise:** These constraints have diverted expansion to secondary Western European markets and beyond. According to JLL, tier-2 cities saw a **49% average increase** in data center footprint in recent years[11]. Locations like **Warsaw** (now viewed as an alternative to Frankfurt or London for hyperscale deployments), Madrid, Milan, and the Nordics are capturing overflow demand[11]. The Nordic countries in particular have seen the **largest surge in new capacity in 2025**, accounting for ~57% of Europe's AI-focused capacity additions as operators leverage *lower-cost renewable power and available sites* there in response to FLAP-D difficulties[12]. For example, large cloud and "neocloud" providers (AI infrastructure specialists) have been leasing Nordic capacity at scale, drawn by abundant green energy and fast permitting[12]. However, Nordic campuses, while sustainable, are geographically remote from much of Europe's user base, reinforcing the need for proximate capacity in CEE for latency-sensitive workloads.

- **U.S. Parallels – Shift to New Regions:** A similar pattern is evident in North America. In the U.S., primary hubs like Northern Virginia and Silicon Valley face high costs and power limitations, driving hyperscalers to invest in secondary markets such as Phoenix, Atlanta, and Hillsboro. Major established markets (e.g. Northern Virginia, Dallas-Fort Worth, Chicago) still attract the bulk of investment, but *power constraints and land costs* are increasing interest in emerging locales[13]. States like North Carolina, Pennsylvania and others are actively courting data center projects with incentives and faster approvals[14]. This trend underscores a broader theme: as core hubs saturate, both providers and governments seek out new regions – whether U.S. states or European mid-markets – to sustain growth. CEE is a prime beneficiary of this trend, effectively becoming Europe's version of an "emerging market" for data centers.

These global and regional dynamics position CEE as **Europe's next growth frontier** for digital infrastructure. Construction costs in CEE are still **25–40% lower** than in Western Europe on average[11], and power prices in some CEE countries are among Europe's most affordable (with Czech industrial tariffs around €0.07/kWh, the continent's lowest[15]). The result is strong interest from international players and an upswell of local development, detailed by country below.

Poland: Dominant Market, Hyperscaler Anchors and Rapid Expansion

Poland commands the CEE data center landscape, accounting for roughly **70–80% of the region's current capacity**. As of 2024, Poland had about **180 MW of operational multi-tenant capacity**, projected to scale to **~500 MW by 2030** and potentially **930 MW by 2030** including hyperscale projects[16][17]. This implies a market size growing from $1.1 billion today to ~$2.8 billion by 2030 (15–16% CAGR)[18]. Warsaw, the capital, concentrates ~70% of that capacity and new investment, although power constraints there are spurring growth in secondary cities like *Poznań*, *Wrocław*, *Kraków*, and *Gdańsk*[18].

Recent Projects and Announcements: The past 24 months have seen a flurry of large projects:

- **Atman WAW-3 (Warsaw)** – Market leader Atman (15% share locally) opened the first phase (14.4 MW) of its new **43 MW campus** in Duchnice, Warsaw in September 2025[19]. Backed by a PLN 1.35 billion ($345 million) syndicated loan, it's the largest single DC investment by a Polish-owned operator[20].

- **Vantage Warsaw Campus** – U.S.-based Vantage Data Centers, through a €2.5 billion European joint venture with DigitalBridge, MEAG, and others, operates a **48 MW hyperscale campus** in Warsaw's Bielany district[21]. The site is fully operational, serving cloud giants, and could expand further given available land.

- **Equinix and Global Players** – Equinix has two IBX facilities in Warsaw (though comparatively smaller), and Data4 (backed by AXA IM) is developing a **€500 million campus in Jawczyce** targeting ~60 MW across four buildings[21]. Also, *Switch Datacenters* of the Netherlands announced its first international expansion with a planned **90 MW campus in Warsaw** (project details finalized mid-2025)[22]. New domestic entrants are appearing too: in mid-2025, startup 1911 Data Centers revealed plans for a **46 MW facility** near Wrocław in southwest Poland[23].

- **EdgeConneX and Greykite (Digital Ursus)** – In May 2025, UK investor Greykite and partner White Star signed a lease with EdgeConneX to convert a logistics park in Warsaw's Ursus district into a **65 MW data center**[24]. EdgeConneX already operates three other Warsaw sites (~35 MW total) and is reportedly dedicating the Ursus capacity to one of the world's top-5 tech companies[25] (underscoring hyperscaler demand via colocation).

- **Beyond.pl Poznań Expansion** – Beyond.pl, an innovative Polish operator in Poznań, is expanding its campus to **150 MW** to focus on high-density AI and cloud workloads[26]. Its facility is notable for supporting extreme rack densities (130–150 kW per rack) and holding dual top-tier certifications (ANSI/TIA-942 Rated 4 and EN 50600 Class 4) – the only data center in the EU with both, as of 2025[26].

- **Hillwood Development (Reguły, Warsaw)** – Hillwood Development Company, the Dallas-based industrial real estate developer, is advancing plans for a **130 MW hyperscale campus** in Reguły, southwest of Warsaw. The project represents one of the largest greenfield data center developments in CEE's pipeline and signals growing interest from established global industrial developers diversifying into digital infrastructure.

Key Players and Investors: In addition to Atman, Vantage, Equinix, Data4, and EdgeConneX, other active players include **Microsoft and Google** themselves. Microsoft's **Azure Poland Central** region went live in 2023 – the first hyperscaler cloud region in CEE – following an initial $1 billion investment, and Microsoft announced an additional **PLN 2.8 billion ($704 million)** expansion in early 2025 to add capacity[3]. Google opened its Warsaw cloud region in 2021, committing about **$2 billion** to infrastructure, and continues to ramp up capacity[3]. These cloud regions make Poland a primary hub for serving CEE customers, and they also stimulate the ecosystem by attracting other providers and corporate customers. On the demand side, *enterprise and corporate tenants* driving colocation uptake include financial institutions (Poland's banking sector is large and data-intensive), global IT outsourcers, content and gaming providers, and increasingly AI startups leveraging Poland's cloud on-ramps.

International investors have shown conviction in Poland's upside. In 2024–25, sovereign funds and private equity poured capital into Polish ventures – e.g. Singapore's GIC and others invested €1.4 billion into Vantage's EMEA platform (which includes Warsaw)[27], and infrastructure funds like DigitalBridge and Macquarie are actively scouting projects. Local financing is also robust: Atman's bank syndicate deal and recent land acquisitions by foreign developers (e.g. **Hillwood** securing a site for a 130 MW campus near Warsaw) demonstrate confidence in long-term demand[28].

Outlook (Next 2–3 Years): Poland will remain CEE's bellwether market. Industry projections indicate total installed capacity could triple by 2030[29], with hyperscalers (potentially including AWS, which has yet to launch a region in CEE) further growing their footprint. One constraint is power in Warsaw – the queue for new large connections is now 12–24 months[30], and available grid capacity in the capital dropped 41% from 2022 to 2024[30]. In response, developers are shifting some builds to **secondary cities** (which still have available grid and land) and deploying on-site generation or energy storage to augment power. PSE's ongoing grid investments (11,000 km of new lines by 2034) should gradually alleviate bottlenecks[30]. In the near term, expect **continued double-digit growth** in Polish colocation supply, led by expansions of existing campuses (phases 2–3 of sites like Atman WAW-3 and Greykite/EdgeConneX Digital Ursus) and new entrants establishing a presence.

Poland's investment incentive framework ranks among Europe's most favourable for data center development. The Polish Investment Zone programme offers corporate income tax

exemptions of **up to 50% of qualified investment costs** (rising to 70% for SMEs in designated regions). Additional tax incentives include **200% R&D deductions** for energy-efficient equipment and technologies, and **50% robotisation relief** for automation investments – both highly relevant to modern data center operations.

The country's fourteen Special Economic Zones provide preferential treatment including real estate tax exemptions, expedited permitting, and infrastructure support. The Pomeranian Special Economic Zone alone secured **PLN 2.8 billion** ($704 million) in new investment pledges in 2024, with technology infrastructure projects increasingly represented. These layered incentives, combined with competitive construction costs and improving grid infrastructure, position Poland as CEE's most attractive jurisdiction for large-scale data center investment.

All signs indicate Poland will **maintain its leadership** as the primary hub for CEE, bridging the gap between Western Europe's cloud and the region's fast-growing digital economies.

Czech Republic: Opportunities Tempered by Regulatory Headwinds

The Czech Republic is CEE's second-largest data center market by capacity, with roughly **60–65 MW operational** (across an estimated 50+ facilities, mostly in Prague)[32]. The colocation market value was about $244 million in 2024 and is on track for ~$515 million by 2028 (~11% CAGR)[33]. Despite solid fundamentals – *low power costs and central location* – the Czech market has struggled to attract hyperscale cloud deployments, largely due to bureaucratic hurdles and power grid limitations.

Recent Developments: A high-profile setback underscored the challenges in 2023: **Microsoft canceled a planned data center campus in Prague** after reportedly encountering "complex bureaucracy and long wait times" for permits and utility approvals[34]. Microsoft had spent ~$64 million to acquire 7 hectares of land in the Prague-Klíčov area[34], but ultimately redirected its expansion to other countries. This episode signaled to hyperscalers that Czech development timelines can be unpredictable, prompting greater interest in Poland and even Romania for new cloud regions.

Nonetheless, local and regional operators are investing in Czech facilities:

- **České Radiokomunikace (CRA) – Prague**: CRA, backed by Cordiant Digital Infrastructure, is building a **26 MW data center** at Prague-Zbraslav – currently the country's largest announced project[35]. This campus aims to serve hyperscale clients indirectly and domestic demand, with go-live expected by 2025–26.
- **GTS, O2, T-Mobile**: Telco-affiliated players remain significant. GTS (part of the T-Mobile family) operates seven data centers across Prague, Ostrava, and Brno; O2 Czech Republic and T-Mobile have multiple Tier III sites in Prague. These tend to be smaller (1–5 MW range) but cater to enterprises and government clients. No major expansions from these incumbents were announced in the past year, reflecting a wait-and-see approach.
- **Smaller Providers**: A handful of domestic firms (like TTC Teleport, Dataclair.cz, VSHosting) opened or expanded boutique facilities (often under 1 MW) to serve niche and edge needs. These incremental additions keep Prague's supply growing modestly.

Capacity and Cost Advantages: The Czech Republic offers some structural advantages to data center investors. Electricity is inexpensive – industrial power averages only **€0.07 per kWh**, among the lowest in Europe[15]. This is thanks to a legacy of base-load nuclear and coal generation. Labor is skilled and costs are lower than Western Europe. And Prague sits at a crossroads of Central European fiber routes, making it a logical location for latency-critical deployments serving not only Czechia but southern Poland, Slovakia, and Austria.

However, **grid connection delays** are a serious concern. Securing a large (20 MW+) power connection in greater Prague can **take 3–5 years**, according to industry reports[36]. This is

partly due to grid capacity constraints around Prague and the lengthy permitting process for new substations. The slow pace has limited the **development velocity** – operators cannot scale up quickly even when demand exists. That is one reason no global cloud region has been launched in Czechia to date.

The Czech investment incentive framework, administered by **CzechInvest**, offers corporate income tax credits, job creation support, and real estate tax exemptions for qualifying technology center investments. A 2024 amendment streamlined approval processes for non-strategic investments. CzechInvest facilitated 28 investment projects worth €2.4 billion in 2024, creating over 3,400 jobs, though only two involved technology center classifications specifically—underscoring the need for more targeted data center attraction efforts.

Outlook: In the next few years, Czech market growth will be steady but not explosive. There is pent-up demand from enterprises and international firms for local capacity (for instance, German and Austrian companies looking for redundant sites just over the border in a stable EU country). If regulators succeed in streamlining approvals – a 2024 amendment did begin simplifying some investment processes[37] – it could re-ignite hyperscaler interest. Microsoft's withdrawal was a wake-up call; the government via CzechInvest has since been working on more attractive incentives and clearer rules for strategic data center projects[37].

For now, Prague will see incremental expansion of existing sites and completion of projects like CRA Zbraslav (26 MW) by 2025. We anticipate **regional or pan-European operators** (e.g. Digital Realty, NTT or Orange Business Services) might partner with local firms to enter the market once the CRA facility sets a new benchmark. Total operational capacity could reach ~80–100 MW by 2027 if current projects proceed. The Czech Republic's role may be as a *"spillover" market* – picking up demand that can't be met in Frankfurt/Vienna/Munich due to their constraints. Notably, Prague's proximity to **Vienna** (a major hub ~300 km south) means it can serve as an alternative for workloads that might otherwise go to Austria, especially given *Czechia's considerably lower power prices*. The key to unlocking this potential is reducing red tape. Should progress occur on that front, Czech Republic could recapture some of the momentum lost to Poland and emerge as a genuine CEE hub for hyperscalers later in the decade.

Romania: Hyperscale Ambitions Backed by EU Funds

Romania has quickly become one of CEE's fastest-growing data center markets, buoyed by a combination of local demand, European Union funding, and hyperscaler interest. Current multi-tenant capacity is around **78 MW** (2024) but is projected to reach **~189 MW by 2030**, a remarkable **~20.6% CAGR** – the highest growth rate in the region[38]. Romania benefits from excellent connectivity (it has *Europe's top residential internet speeds* and high fiber penetration) and low construction costs (under €7.5 million per MW, significantly cheaper than Western Europe)[39].

Major Projects and Announcements:

- **ClusterPower (Craiova)** – The most ambitious project in CEE is ClusterPower's technology park near Craiova in southern Romania. This planned **200 MW hyperscale campus** spans 25,000 m² and will offer up to 4,500 racks[40]. Uniquely, it features an on-site natural gas *trigeneration plant* for power and cooling, targeting an impressive power usage effectiveness (PUE) of 1.1[40]. ClusterPower launched its first phases in 2022–2023 (supported by RON 172 million (~€36 million) private investment and RON 82 million in state aid) and achieved NVIDIA DGX-Ready certification to attract AI workload clients[41]. By 2025, additional phases were under construction, positioning ClusterPower as a potential regional hub for cloud and high-performance computing.

- **Bucharest Data Centers (NXDATA & Partners)** – Bucharest, the capital, is home to Romania's longest-established players like NXDATA (the leading carrier-neutral provider). NXDATA operates two major facilities in the city and is expanding steadily. Additionally, **Portland Trust**, a developer backed by Ares Management, entered the market with two new builds: *"DC1"* in the city's Vitan district (8,800 m², delivered in late 2024) and *"DC2"* on a 4-hectare campus in western Bucharest (20,000 m² under development)[42]. Portland Trust's move – diversifying from its core business of office parks – signals confidence in Romanian digital infrastructure.

- **Global Cloud and Government Projects:** While AWS or Azure have not launched Romanian regions yet, **Google signed a memorandum with Romania's government in 2024** to collaborate on cloud and cybersecurity development[43]. The Romanian government itself is investing heavily: it allocated **€500 million** from the EU-funded National Recovery and Resilience Plan for four new state-owned Tier IV data centers[44]. In March 2025, it announced an additional €180 million for AI research infrastructure[44]. These public-sector builds (often in partnership with EU institutions) will add significant capacity dedicated to e-government, national IT, and research – effectively anchoring demand and improving trust in local hosting.

- In March 2025, the government announced an additional **€180 million allocation for AI research infrastructure**, signalling strategic prioritisation of high-performance computing capabilities.

Market Drivers: Romania's appeal lies in its **hyperscale potential**. It has a large IT workforce and sizable population (~19 million) generating data. Crucially, power and land are available outside Bucharest. Microsoft and Amazon have had large engineering operations in Romania for years; their interest in local cloud zones is growing as Romanian data usage soars and data-residency concerns increase. The ClusterPower campus, in particular, has drawn interest as a model: by integrating on-site generation, it addresses one of Romania's challenges – energy stability – head on. International telecoms also see Romania as a gateway to the Balkans and Black Sea region, boosting Bucharest's role as an interconnection point.

Challenges – Energy Volatility: The biggest headwind for operators in Romania is the volatile energy market. Wholesale electricity prices spiked to **€109 per MWh in Sept 2024**, the highest in CEE, with daily price swings over €50/MWh[45]. This volatility, driven by Romania's reliance on natural gas and weather-dependent hydro, creates uncertainty in operating costs. The government imposed temporary price caps through 2025 to shield businesses[45], but data center investors remain concerned about long-term pricing. The ClusterPower strategy of independent power generation (using Romania's natural gas resources for consistent supply) may become a blueprint – indeed, other operators are now evaluating *on-site gas or solar plus battery* solutions to mitigate grid price risk.

Outlook: Romania is on the cusp of joining Poland as a hyperscale location. In the next 2–3 years, expect **Romania's data center capacity to potentially double**. Bucharest will see new multi-tenant facilities come online (Portland's DC2, NXDATA's expansions, possibly an entry by a global colocation firm). More intriguingly, *a major cloud region announcement* is a real possibility: Google's 2024 MOU and Amazon's increasing footprint hint that one of the big three could choose Romania for their next European cloud region, particularly to serve Southeastern Europe and Turkey. Such an investment would be transformative, likely involving hundreds of millions of dollars.

Power infrastructure will remain the swing factor. Romania is pursuing new generation – including plans for **Europe's first small modular nuclear reactor by 2028** in partnership with NuScale (USA)[46] – which could stabilize the grid by late decade. In the interim, data center developers will utilize **PPAs and private energy projects** to ensure reliable supply (e.g. several signed renewable PPAs for Romanian facilities are already in place). Given government support and EU digital targets, Romania is poised for **the fastest growth rate in CEE**, albeit from a smaller base than Poland. By 2027, the country's operational capacity could easily exceed 120 MW, with a clear roadmap toward the 200 MW mark by 2030. Romania is effectively becoming **the hyperscale cloud's "new frontier"** in Europe – provided it can keep the lights on at a reasonable cost.

Baltic States: Nordic Connectivity and Digital Maturity in Lithuania, Latvia, Estonia

The three Baltic countries – **Estonia, Latvia, and Lithuania** – together offer a distinct value proposition: a bridge between Nordics and Eastern Europe, with highly developed digital infrastructure and improving energy security. The Baltic data center market is smaller in absolute terms (combined operational capacity roughly *50–60 MW* as of 2024) but is growing around **14% annually**[47]. Estonia and Lithuania lead in current capacity, while Latvia is catching up after industry consolidation.

Highlights by Country:

- **Estonia:** The standout facility in the Baltics is Estonia's **Greenergy Data Centers campus** near Tallinn. Opened in 2022, this carrier-neutral campus offers **31.5 MW** across 14,500 m²[48], making it the largest in the region. Greenergy (backed by the Three Seas Initiative fund) emphasizes sustainability – deploying AI-driven cooling with over 3,000 sensors and achieving a PUE below 1.2[48]. It even plans to recycle waste heat to warm up to 5,000 nearby homes. Uniquely, Greenergy Tallinn earned an **EN 50600 Class 4** certification (the only facility in all of Baltics & Finland with that highest resilience rating)[49], underscoring Estonia's commitment to global standards. Estonia's government and tech-forward enterprises (the country is renowned for its e-government services and startups) are key customers driving local demand. While no hyperscaler region is present, Azure and AWS use Estonian edge nodes, and the market is primed for niche cloud providers.

- **Lithuania:** Lithuania has become a *Baltic expansion hub*. The telco Telia Lietuva is investing about €10 million in a **new data center in Vilnius**, which will be the largest in Lithuania when completed[50]. This facility complements Telia's existing sites (such as in Kaunas and the two in Vilnius: Žirmūnai and Naujoji Vilnia). The Lithuanian government set ambitious goals – targeting **70% renewable energy by 2030** and full energy *self-sufficiency by 2035*[50]. These policies are attracting interest from data center investors who seek long-term green power. Companies like Baltic DC and Data Logistics Center also operate in Vilnius and Klaipėda, serving finance and gaming industries. With strong connectivity to Poland (via the *LitPol* power and fiber links) and Sweden (*NordBalt* submarine cable), Lithuania positions itself as a lower-cost alternative to the Nordics for certain workloads.

- **Latvia:** Latvia's market transformed in mid-2024 with the merger of two leading providers, DEAC and DLC (Data Logistics Center), under a new brand *Delsk* (backed by Quaeroq and Marguerite investment funds). This combined entity immediately announced a **new Riga data center project up to 30 MW**, slated to go live by 2025[51]. The project secured ~€30 million in financing from SEB Bank[51], reflecting confidence in latvian demand growth. Riga, the capital, thus stands to

gain its first modern large-scale data center campus. Elsewhere, Telia Latvia and Latvia's State Radio and Television Centre run smaller Tier III facilities primarily for government and telco needs. With the DEAC–DLC merger, a more robust, internationally competitive Latvian operator is now in place, likely to target regional clients and attract new logos to Riga.

Regional Power and Connectivity: A milestone for the Baltics was achieved on *February 9, 2025*, when Estonia, Latvia, and Lithuania **synchronized their grids with the Continental European grid**, finally severing legacy dependence on the post-Soviet BRELL ring (Russia/Belarus)[52]. This €1.6 billion effort (75% funded by the EU) dramatically improves energy security and stability[53]. Key interconnections now link the Baltics north and west: *Estlink* (1,000 MW sub-sea cable to Finland), *NordBalt* (700 MW to Sweden), and *LitPol Link* (500–1,000 MW to Poland)[54]. By 2030, a second Poland-Lithuania *Harmony Link* (700 MW HVDC) will further bolster resilience[54]. For data centers, this integration means far lower risk of power disruptions and access to Europe's energy market for sourcing renewables. It is a game-changer that makes large-scale DC investments in the Baltics far more feasible than before. During the transition (2025–2030), the Baltics will manage without Russian backup – a *transitional risk* – but the new connections and planned local power plants (including possible Estonian small nuclear reactors in the 2030s) are expected to suffice[55].

The €1.6 billion synchronisation investment (75% EU-funded) represents the largest single infrastructure project in Baltic history and eliminates the last technical dependency on Russian/Belarusian energy systems.

Outlook: The Baltics are carving out a niche as a high-quality, green, but modestly sized data center cluster. We anticipate each country will focus on its strengths: Estonia on ultra-reliable, high-security facilities for finance and government (leveraging its digital society reputation); Lithuania on attracting international colocation and cloud nodes (aided by its renewables push and links to Poland/Nordics); and Latvia on growing the new Delsk campus to recapture local enterprise workloads that might otherwise go to Stockholm or Warsaw. By 2027, the combined Baltic capacity could reach ~100 MW, with 2–3 sizable campuses operational. The growth rate (~14% annually) will likely hold as local enterprises, Baltic branches of global companies, and some Russian/Belarusian companies (relocating due to geopolitical issues) fuel demand. An interesting prospect is if a large cloud provider uses one of the Baltics as a deployment for an edge region or specific service zone – for instance, a Google Cloud zone to serve Baltic and Finnish users from Lithuania. Overall, the Baltics offer **Nordic-level connectivity and clean power** at lower cost, which will keep them on the radar of investors looking for the next "Northern European" opportunity.

Slovakia and Croatia: Emerging Niche Markets in CEE

Both Slovakia and Croatia are smaller data center markets that nonetheless present unique opportunities. They serve as gateways to their sub-regions (Slovakia for Central Europe and Croatia for the Western Balkans) and boast some favorable conditions like clean energy or strategic location. Though currently modest in scale, their steady growth and recent investments warrant attention.

Slovakia:

With an estimated **30 MW across ~13 facilities** nationally[56], Slovakia's data center sector is small but stable. The market was worth ~$114 million in 2024 and is forecast to reach ~$157 million by 2030 (a slower ~5.8% CAGR)[57]. The vast majority of capacity is in or near *Bratislava*, the capital, which lies on the border with Austria and Hungary. This proximity to Vienna (60 km away) is a strategic plus – Bratislava can serve as an "overflow" location for deployments that might not fit in Vienna's constrained market, offering lower costs but similar latency.

Slovakia's biggest advantage is its **power profile**: around **85% of its electricity comes from low-carbon sources** (mostly nuclear and hydro)[56], making it the cleanest grid in CEE. Slovakia operates four nuclear reactors (with a brand new one, Mochovce-3, starting in 2023), enabling very low carbon intensity per kWh. For sustainability-focused clients, Slovak data centers can offer near-zero carbon operations by default – a differentiator as ESG considerations grow.

Key players include **Slovak Telekom** (part of Deutsche Telekom), which runs five data centers (in Bratislava and other cities) totaling ~6,000 m², primarily serving telecom and enterprise needs[58]. The largest single site is **DataCube** in Bratislava, a Tier III facility with ~10 MW capacity, which acts as a carrier-neutral hub for international connectivity[58]. Several local IT service companies and banks also operate private data centers, though no global colocation firms are present yet.

Recent news saw international interest: in 2024, *Digital Realty* acquired a land parcel outside Bratislava, signalling a potential future project (no details public yet). This suggests that big operators are scouting Slovakia as part of a regional strategy. Also, the government in 2023 expressed interest in attracting a hyperscale cloud region by leveraging Slovakia's EU funds and energy surplus – although no concrete announcements have followed yet.

Outlook for Slovakia: Growth will likely be incremental. We expect Slovakia to add a few megawatts per year via expansions of existing sites and possibly one new larger facility if an investor like Digital Realty proceeds. By 2025–2026, Bratislava might see a new 5–10 MW neutral data center aimed at pan-European clients seeking dual-site with Vienna or Prague. Slovakia's selling point to investors is *reliability*: a robust grid, politically stable

environment, Euro currency, and strong connectivity to major Internet exchanges in Vienna. While hyperscalers haven't built there yet, Slovakia could quietly become a disaster recovery or edge location for cloud providers that have primary sites in nearby countries. Overall, expect **steady, single-digit growth** in Slovakia's market – not a hotspot, but a solid component of the CEE portfolio with upside if it leverages its nuclear-powered grid to attract green data center initiatives.

Croatia:

Croatia's data center market, roughly **17 MW across ~18 facilities**, serves as the digital gateway to Southeast Europe and the Adriatic region[59]. Though smaller than its northern CEE peers, it has drawn attention due to Croatia's EU membership, geographic position, and recent tech sector growth. Market value is growing ~8% annually through 2030[60] – a reflection of gradually rising regional demand.

One landmark event was **Digital Realty's entry via acquisition**: in 2021, Digital Realty acquired Altus IT, a local colocation provider in Zagreb[59]. Altus's main site (about 1,300 m² of white space) became Digital Realty's first footprint in the Western Balkans, offering connections to 50+ carriers and five Tier 1 networks[59]. This put Croatia on the map for global cloud ecosystems, as Digital's Service Exchange can now extend into the Balkans.

Another notable project was by *A1 Hrvatska* (the Croatian arm of A1 Telekom Austria), which opened an **€11 million Tier III data center** in Zagreb in late 2021[61]. Uniquely, this facility was engineered to withstand a magnitude 9.0 earthquake[61] – an important consideration after a 2020 quake in Zagreb. It underscores how Croatian providers are adapting to local risk factors while meeting international standards.

Croatia's overall capacity is concentrated in **Zagreb**, the capital, which is the hub for telecom operators, banks, and the government. A couple of smaller facilities exist in Split and Rijeka, mainly for local businesses. The customer base in Croatia is largely domestic (cloud adoption by businesses, government digitization, and some content delivery networks for the region).

Challenges and outlook for Croatia: One hurdle has been the electric grid's development pace. Regulatory delays, particularly around **grid connection fees and renewable project approvals**, have hampered power sector expansion – for instance, over €1 billion of renewable energy projects are stalled awaiting clearer policies on grid fees[60]. Resolving these issues would help bring more green power online and support future data centers (Croatia has ample solar and wind potential). On the connectivity side, Croatia is improving too: new submarine cables in the Adriatic are planned, which could make Croatia a landing point and reduce latency to Western Europe.

Over the next few years, Croatia is expected to see *gradual expansion*. Digital Realty may upgrade and enlarge the Zagreb site to accommodate more international clients. Local

telcos could build small edge facilities in secondary cities to support 5G and content delivery. By 2025, Croatia's capacity might inch toward 20–25 MW. The nation's data center importance will also grow if it becomes a hub for serving neighboring countries like *Slovenia, Bosnia, or Serbia* (which have very limited infrastructure of their own). Geopolitically, as the EU invests in Balkan digital integration, Zagreb could naturally host regional cloud infrastructure for EU projects. In summary, **Croatia's data center market will expand modestly** and remain focused on colocation for regional needs, but its strategic location and Digital Realty's presence give it a profile beyond its size.

Transaction Activity and Active Investors: Institutional Capital Validates CEE Thesis

The past 24 months have witnessed unprecedented transaction activity in CEE data center markets, with institutional investors deploying billions in capital across both operational assets and development pipelines. These capital flows validate the region's emergence as a strategic growth market and provide market intelligence on competitive positioning.

Major Platform Transactions:

Vantage Data Centers assembled a €2.5 billion European investment partnership with DigitalBridge, MEAG (Munich Re's asset manager), and Infranity, deploying capital across six stabilised facilities including the 48 MW Warsaw campus. In Q1 2025, **GIC** (Singapore's sovereign wealth fund) invested €1.4 billion alongside MEAG into Vantage's broader EMEA platform – representing sovereign wealth validation of the CEE growth thesis at the highest institutional level.

Data4, backed by AXA Investment Managers, raised €3.3 billion for European expansion, allocating **€500 million specifically to Poland** including the Jawczyce campus development targeting 60 MW across four buildings. This targeted geographic allocation signals sophisticated investor conviction in Polish market fundamentals.

EdgeConneX secured €1.9 billion in sustainability-linked financing for EMEA expansion, with Warsaw facilities central to the deployment strategy. The sustainability-linked structure reflects evolving investor ESG mandates and positions the company for green PPA opportunities in CEE's evolving renewable energy markets.

Project-Level Financings:

Atman's PLN 1.35 billion ($345 million) syndicated loan from six Polish and European financial institutions for the WAW-3 campus demonstrates local market financing depth and domestic bank appetite for data center exposure. The transaction – the largest single data center financing by a Polish operator – establishes a precedent for future domestic developments.

In the Baltics, the **Delsk** merger (combining DEAC and DLC under Quaeroq and Marguerite fund backing) secured €30 million from SEB Bank for the new Riga data center project, indicating commercial bank confidence in Baltic market growth despite smaller absolute scale.

Active Market Participants:

Understanding the competitive landscape is essential for market entry and partnership strategies:

Category	Active Players

Global Operators	Vantage Data Centers, Data4, EdgeConneX, Digital Realty, Equinix
Regional Operators	Atman (Poland), Beyond.pl (Poland), CRA (Czech), ClusterPower (Romania), NXDATA (Romania), Greenergy (Estonia), Delsk (Latvia/Lithuania)
Institutional Investors	DigitalBridge, GIC, MEAG, Infranity, AXA Investment Managers, Cordiant Digital Infrastructure, Ares Management, Quaeroq, Marguerite
Hyperscalers	Microsoft (operational), Google (operational), AWS (entry anticipated)

Land Transactions and Pipeline Indicators:

Disclosed land transactions reveal forward positioning by major players. Vantage secured 12 acres in Warsaw's Bielany district for its 48 MW development. Data4 acquired 4 hectares in Jawczyce. Hillwood Development Company is advancing the 130 MW Reguły campus. In Czech Republic, CRA acquired the Prague-Zbraslav site despite broader market challenges. These transactions, often completed 18-36 months ahead of construction, signal continued capital commitment to CEE development pipelines.

Implications for Market Entrants:

The concentration of institutional capital among established operators creates both competitive pressure and partnership opportunities. New market entrants may find greatest success through: (1) joint venture structures with capitalised platforms seeking local expertise; (2) targeting secondary cities where established players have not yet committed; (3) specialised positioning (e.g., AI/HPC focus, hyperscale-ready sites) that complements rather than competes with existing portfolios; or (4) distressed or restructuring situations where incumbent capital structures require refinancing.

Major active or planned data center

Below is a summary of major active or planned data center projects across the CEE countries covered, illustrating the scale and status of development:

Country	Notable Data Center Projects (Location)	Capacity	Status (as of 2025)	Developer/Operator
Poland	Atman WAW-3 (Warsaw)	43 MW	Phase 1 (14 MW) live; expansion ongoing[19]	Atman (Polish)
	Vantage Warsaw Campus (Bielany)	48 MW	Operational (full campus)[21]	Vantage Data Centers (US)
	Data4 Jawczyce Campus (Warsaw)	60 MW (planned)	Under construction (phase deliveries 2024–25)[21]	Data4 (France)

	EdgeConneX "Digital Ursus" (Warsaw)	65 MW	Secured power, fit-out in progress[24]	Greykite/White Star leasing to EdgeConneX
	Beyond.pl Campus (Poznań)	150 MW	Expansion in development (phased)[26]	Beyond.pl (Polish)
	Switch Datacenters Warsaw	90 MW (planned)	Announced 2025 (permits secured)[22]	Switch Datacenters (NL)
	1911 Data Center (Wałbrzych, SW Poland)	46 MW (planned)	Announced 2025 (early-stage)[23]	1911 Data Centres (startup)
Czechia	CRA Prague-Zbraslav	26 MW	In development (largest Czech project)[35]	České Radiokomunikace (CRA)
	GTS/Deutsche Telekom DCs (Prague, Ostrava, Brno)	~10 MW (combined)	Operational (7 sites, Tier III)	GTS & T-Mobile CZ (DT)
	O2 Data Hub (Prague)	~3 MW	Operational (Tier III)	O2 Czech Republic
	Microsoft Prague (Klíčov)	*(~40 MW)*	*Cancelled 2023 (land sold)*[34]	*Microsoft (hyperscaler)*
Romania	ClusterPower Tech Campus (Craiova)	200 MW	Phase 1 operational; ongoing expansion[62]	ClusterPower (RO start-up)
	Portland Trust DC1 (Bucharest)	~8 MW (est.)	Operational Q4 2024[63]	Portland Trust / Ares Mgmt
	Portland Trust DC2 (Bucharest)	~20 MW (est.)	U/C (20,000 m² on 4 ha site)[63]	Portland Trust / Ares Mgmt
	NXDATA-1 / -2 (Bucharest)	~6 MW	Operational (carrier-neutral hubs)	NXDATA (Romania)
	Government Tier IV DCs (4 sites)	–	Planned (funding allocated)[44]	Gov't (EU-funded NRRP project)
Baltics	Greenergy Data Center (Tallinn, Estonia)	31.5 MW	Operational (since 2022)[64]	Greenergy (EE/3SIIF)
	Telia LT DC (Vilnius, Lithuania)	*~? MW* (est. 3–5)	U/C (largest in LT on completion)[50]	Telia Lietuva (Sweden/Lithuania)
	Delsk Riga DC (Latvia) *(new)*	up to 30 MW	U/C, live by 2025[51]	Delsk (DEAC & DLC merger)
	LVRTC "Latvia State" DC	~2 MW	Operational (gov't	Latvian State

	(Riga)		and comms)	Radio/TV Centre
Slovakia	DataCube (Bratislava)	10 MW	Operational (Tier III)	private (Slovak)
	LightStorm DC (Bratislava) *(planned)*	~6 MW	Announced (pending)	Inovićom (local)
	Slovak Telekom DCs (5 sites nationwide)	~6 MW (combined)	Operational (Telco DCs)	Slovak Telekom (DT)
Croatia	Altus Digital Realty (Zagreb)	~1.5 MW	Operational (Digital Realty hub)[59]	Digital Realty (US)
	A1 Telekom DC (Zagreb)	~0.5–1 MW	Operational (since 2021, Tier III)[61]	A1 Hrvatska (Telekom Austria)
	HT (T-HT) Data Center (Zagreb)	~1 MW	Operational (Telco DC)	Hrvatski Telekom (DT)
	(All) *Note:* Many smaller facilities (<<1 MW each) exist in every country, operated by banks, IT outsourcers, cloud/edge providers, etc., but the table highlights major multi-megawatt projects.			

Table: Major data center projects in CEE by country (operational, under construction or announced). Capacities denote total planned at full build-out. U/C – under construction, DT – Deutsche Telekom.

Western Ukraine: Long-Horizon Opportunity with Geopolitical Risk

Western Ukraine, particularly the Zakarpattia (Transcarpathian) region bordering Slovakia, Hungary, and Romania, presents a unique case – a potential future data center locale that could serve as a gateway between the EU and Ukraine. While **no commercial data centers are currently operating** in Zakarpattia, forward-looking investors are monitoring it as a post-conflict opportunity. Any development here is a long-term proposition (likely beyond 2027) given the ongoing war and reconstruction needs, but the fundamentals merit a brief opportunity scan:

- **Geographic and Infrastructure Positioning:** Zakarpattia is the westernmost part of Ukraine, physically separated from the rest of the country by the Carpathian Mountains, which historically has spared it from the worst of the conflict. It directly borders four EU countries (Poland is just northeast). This location could enable Western Ukraine to act as a low-latency extension of CEE networks. In fact, fiber connectivity is already in place – a major **Bratislava–Uzhhorod backbone** runs through, and about 32 international carriers have physical network presence in Ukraine, many accessible in this region[65]. On the power side, Western Ukraine has been partially linked to Europe's grid for years via the *Burshtyn Energy Island* and achieved full **ENTSO-E synchronization in March 2022** as an emergency measure during the war[65]. Cross-border transmission lines connect Ukraine with Hungary, Slovakia, and Romania, offering up to 1,700 MW of import capacity from the EU[66]. In short, the region is not isolated – it has the fiber and potential power interconnections to integrate with European infrastructure.

- **Energy and Grid Situation:** The war has severely impacted Ukraine's power system. Nationally, only about **one-third of pre-war generation capacity** is currently operational[67]. Even Western Ukraine, though far from front lines, suffers *rolling blackouts* when the rest of the grid is strained[67]. Zakarpattia itself has a few small hydroelectric plants (nine units of 1–3 MW each) and identified sites for ~152 MW of potential gas-fired generation where pipelines cross the border[68]. Any data center project in the near future would need substantial on-site generation and backup (diesel/gas gensets, possibly large battery storage) to ensure uptime. In the longer term, as Ukraine rebuilds, Western regions will likely get priority for grid modernization since they can also supply power back to the EU. For instance, Ukraine plans to develop new cross-border lines and renewable projects in safer western provinces to bolster energy security. But until the war ends and rebuilding occurs, reliable power remains a big question mark for Zakarpattia.

- **Political and Regulatory Environment:** Ukraine's government has been steadily improving the investment climate even amid conflict. Notably, there are *no data localization laws* – data can be freely hosted in or out of Ukraine (important for any international operator considering serving Ukrainian clients). A new Personal Data

Protection Law aligned with GDPR (Draft Law 8153) passed first reading in late 2024[69], moving Ukraine closer to EU legal standards. In finance, **foreign exchange restrictions have eased** – as of mid-2024, companies can repatriate dividends up to €1 million per month[70], a positive for investors needing to extract profits. Furthermore, Ukraine received EU *Candidate Status* in June 2022 and expects substantial reconstruction aid (~€50 billion in 2024–27 from the proposed EU Ukraine Facility)[70]. All this indicates a trajectory toward EU integration and adoption of European regulations, which would simplify a future cross-border data center business.

- **Security and Risk Mitigation:** The elephant in the room is obviously the war. Commercial investment in data centers will not occur at scale until security is assured (i.e. a ceasefire or peace agreement). However, international institutions are already laying groundwork to de-risk investments in Ukraine's west. For example, the U.S. International Development Finance Corp (DFC) has over $800 million in exposure in Ukraine, with up to $500 million available per project in political risk insurance[71]. The World Bank's MIGA has issued $215 million+ in guarantees since 2022, even covering one project in Lviv (an industrial park)[71]. War-risk insurance availability, while costly, means that in principle a data center project *could* secure coverage. Additionally, Western Ukraine's distance from the conflict and NATO's expanding support give some comfort that Zakarpattia might remain physically secure relative to other parts of Ukraine.

- **Appeal to Hyperscalers or Edge Providers:** In a post-war scenario, Zakarpattia could be attractive for hyperscalers as an **edge location** serving western Ukraine and neighboring EU countries. Think of it as similar to how **Eastern Poland** now hosts caching nodes for traffic into Ukraine. Hyperscalers might deploy small Availability Zones or edge caches in Uzhhorod (Zakarpattia's capital) to improve service for Ukrainian users without going deep into the country. Likewise, international colocation firms could set up disaster recovery sites for Ukrainian companies that want data redundancy outside major cities like Kyiv (which might remain more exposed). The region's **multilingual workforce** – locals often speak Ukrainian, Hungarian, Slovak, and Romanian – is a plus for international business[72]. There is also a nascent IT outsourcing industry in Zakarpattia (relocated tech professionals from other parts of Ukraine), which could support data center operations.

Timing and Vision: Realistically, any significant data center development in Western Ukraine is a **long-term play**. Industry analysts outline phases: *Near-term (2024–25)* focus on monitoring conditions and perhaps investing in planning or land (some savvy investors are quietly securing land options now). *Mid-term (2026–28)*, if the conflict stabilizes or ends, we might see pilot projects – e.g. small 1–5 MW edge data centers or disaster-recovery sites serving Ukrainian enterprises, built with heavy backing from development banks and fully insured[73]. *Long-term (2028 onward)*, assuming a peace settlement and progress

toward EU accession, Zakarpattia could see larger investments, like a full-fledged 20–40 MW colocation campus to serve as a bridge between EU and Ukrainian networks[73]. Such a project could require **€50–100 million+ in infrastructure** (including robust power and fiber links) and would likely involve public-private partnership given the scale of rebuilding needed[74].

Encouragingly, industrial real estate is already earmarked: the *Uzhhorod Industrial Park* (10 hectares on an international transport corridor) and *BF Terminal* near the Hungarian border (logistics park) are potential sites, offered at land costs far below those in EU locations[72]. These sites advertise readiness for investors and could host data centers with relative ease of cross-border trucking and connectivity. When peace comes, Ukraine's demand for cloud and digital services will be enormous – and Western Ukraine will be the natural home for that infrastructure until the entire country stabilizes. For now, the region remains a speculative opportunity, one that forward-looking firms like DBS will keep on the radar as part of a **long-horizon strategy** in CEE.

Power and Energy: Constraints and Opportunities Across CEE

Underlying the data center boom in CEE is the critical question of power: Can each country provide reliable, affordable, and preferably green electricity to energy-hungry server farms? Power infrastructure is in many ways the *defining competitive factor* for CEE markets, determining where large-scale developments can thrive. Below we examine energy availability, constraints, pricing, and sustainability initiatives in the region:

Grid Capacity and Reliability: Generally, CEE countries enjoy robust transmission grids (a legacy of their industrial past), but local bottlenecks exist:

- In **Poland**, rapid DC growth is colliding with grid constraints in the Warsaw area. As noted, available connection capacity in Warsaw proper dropped dramatically (over 40% reduction from 2022 to 2024)[30]. Outside Warsaw, however, Poland has significant unused grid potential – which is why secondary cities are now targets for DC campuses. Poland's grid operator PSE is midway through a €15 billion modernization plan (2025–2034) adding 4,700 km of high-voltage lines and upgrading 28 substations[30]. This will *eventually* unlock big blocks of power (including for planned offshore wind and nuclear plants) but in the near term, developers must navigate wait times of 1–2 years for new connections[30]. Some are turning to interim solutions like gas turbines or large battery banks to bridge the gap.
- **Czech Republic** has ample generation (it's an electricity exporter) but *distribution* to new sites is slow. As mentioned, a 20 MW request can take 3–5 years in Prague[36], largely due to lengthy permitting for new grid infrastructure. Outside Prague, smaller cities have more headroom. The government's energy roadmap includes expanding transmission capacity around major industrial zones by late 2020s – data centers are now explicitly considered in those plans, partially thanks to CzechInvest's advocacy[37]. Until upgrades materialize, Czech developers may remain power-constrained.
- **Romania's** grid is a tale of two halves: the western and central parts have strong networks (ties to Hungary/Serbia) and even export power at times, whereas the south and Moldova region struggle with stability. For data centers, locations in *Transylvania or near Bucharest* benefit from multiple feeds and proximity to generation. Romania also has cross-border links (with Hungary and soon a new one with Moldova) that can be tapped. Yet the volatility of supply (discussed below) means reliability is about consistent fuel supply as much as wires – hence the move to on-site generation like at ClusterPower. The government, via Transelectrica, is investing in grid automation and new 400 kV lines by 2030, backed by EU funds, which should improve consistency and allow more renewables to connect in wind-rich Dobrogea (east) and sun-rich Oltenia (southwest).

- The **Baltic states**, having synchronized with Europe, now have highly reliable grids comparable to Nordic standards. One caution is that until the new Harmony Link to Poland comes in 2030, the Baltics rely on essentially *one major AC link (Lithuania-Poland) and two submarine links* for import during peak times[54]. This single-thread dependence means a potential risk if any link goes down before local generation scales up. Nonetheless, Estonia, Latvia, Lithuania each have plans to add modern gas plants or energy storage to assure supply post-2025. Data center operators in the Baltics are thus confident enough in grid power to pursue large projects (e.g. Greenergy did not need on-site fossil generation, instead it counts on grid and backup generators).

- **Slovakia** has a strong grid with surplus base-load (thanks to nuclear). Many Slovak industrial areas actually seek more customers to maintain load balance after some heavy industry closures. This bodes well for data centers – indeed, Slovakia often touts that it can deliver multi-megawatt connections faster than neighbors. **Croatia**, on the other hand, faces an aging grid and historically imported 30–40% of its power. Recent upgrades and new transmission from Slovenia and Hungary have improved things. The key in Croatia is unlocking renewables, as numerous solar/wind projects wait for clearer grid fee rules[60]. Once those projects proceed, Croatia will have plenty of green power which data centers can leverage via PPAs.

Energy Mix and Decarbonization: CEE countries differ widely in their energy mix, affecting both carbon footprint and sometimes cost:

- **Poland** stands out as a coal-heavy outlier. With ~61% of generation from coal, its grid has the EU's *highest carbon intensity* at about **662–865 gCO_2/kWh**[75]. This is a concern for any operator with net-zero goals. The positive news is Poland has aggressive plans to transform: by 2030 it aims to cut coal's share significantly, targeting **51.8% renewable energy** in its power mix[76]. Massive offshore wind farms in the Baltic Sea (6 GW by 2030, 18 GW by 2040) are in development[77]. Poland is also investing in nuclear – contracting to build three large reactors (~3.75 GW total) by mid-2036 and potentially up to 9 GW by 2043[78]. If these timelines hold, Poland's grid will become much cleaner and more robust. Already, data center firms are negotiating long-term green energy deals (e.g. Orange Polska signed a 10-year PPA for a new 36 MW wind farm to cover ~20% of its power needs[79]). For the interim, some operators consider buying Guarantees of Origin or investing in on-site solar to offset the high CO_2 profile.

- **Czech Republic** has a more balanced mix: around 50% low-carbon (nuclear and renewables) and 50% fossil (mostly coal). It has one of Europe's cheapest electric costs largely because of domestic coal, but that will change as EU climate policies push coal phase-out by 2033. The country plans to build at least one new nuclear unit (~1,200 MW at Dukovany by ~2036) and ramp up renewables (especially solar, aiming for 8 GW by 2030). For now, Czech power is both cheap and relatively

carbon-moderate (~0.4–0.5 kgCO_2/kWh). Data center investors find this combination attractive, though they are mindful that current low prices might rise as decarbonization costs kick in.

- **Slovakia** is nearly green: about 55% nuclear, 20–25% hydro, 10% other renewables, and the rest gas. With Mochovce-4 reactor coming online in 2024, Slovakia will be almost fully self-sufficient and very low carbon (estimated <0.15 kgCO_2/kWh). This means any data center in Bratislava can essentially boast a 90%+ carbon-free power supply by default. The government is still pushing further, encouraging solar installations and exploring hydrogen, but for data centers the main appeal is already the nuclear baseline. For example, a company requiring a *sustainable European location* for AI compute might consider Slovakia precisely for its clean power advantage.

- **Romania's** mix is diverse: roughly 30% renewables (hydro+wind+solar), 20% nuclear (two Cernavodă units), 25% gas, and 25% coal. Romania actually has a fairly low average carbon intensity (around 0.25–0.3 kgCO_2/kWh) when hydro output is high. But the variability is huge – droughts can cut hydro, and old coal plants break down often, causing more gas and imports to fill gaps, spiking prices. Romania is taking major steps: it is expanding nuclear (plans for two more Cernavodă reactors by 2031, and committed to the NuScale SMR as noted), and just passed its first Offshore Wind Law to exploit the Black Sea's wind potential. Also, a **prototype 1 GW solar+storage hybrid project** is underway (e.g. around 2025, Enel and others working on large PV farms with hundreds of MWh of batteries) which should help stabilize the grid[80]. For data centers, these efforts mean that by late decade the power supply should be more predictable and greener, making Romania a safer bet energy-wise.

- **Baltic States** historically relied on Russian gas/oil-shale and imports, but now they are racing toward renewables. *Lithuania* aims for 100% domestic electricity by 2030 and 100% renewable by 2050 (with interim 70% by 2030)[50]. It's investing in onshore and offshore wind (700 MW auction ongoing) and has Europe's largest battery storage project operational (200 MW). *Estonia* is moving off oil-shale (highly polluting) by 2030, replacing it with renewables and potentially a small modular reactor by 2035 (a plan under consideration). *Latvia* already gets ~40% of power from hydro (the Daugava River plants) and is adding wind. For data centers, this means the Baltics will have increasingly green power available, although they may occasionally need to import from Nordic or Polish grids which could carry some fossil component. The strong political will for decarbonization in these countries is a reassuring sign for anyone building long-term infrastructure.

- **Croatia** has a relatively clean mix too: roughly 30% hydro, 20% other renewables (wind/solar growing fast), 50% gas/coal/imports. It's targeting 36% renewables by 2030 (likely to be exceeded given many solar projects in pipeline). A bureaucratic

quirk on connection fees slowed projects, but once resolved, Croatia could quickly add several hundred MW of wind/solar (it has excellent solar irradiance on the coast). For example, a 156 MW solar farm in Dalmatia is awaiting approval, and many 10–50 MW solar projects are queued. For a data center operator, Croatia's carbon intensity is moderate (~0.2–0.3 kg/kWh) and expected to drop further as these projects come online.

Energy Prices and Volatility: Power pricing directly hits the bottom line of data center operations, and CEE has seen both extremes:

- As mentioned, **Czechia's €0.07/kWh** industrial electricity is a big lure[15]. This low price is somewhat subsidized by the government and the presence of cheap legacy coal. It may creep up as coal plants retire, but short-term, it gives Czech Republic a cost edge (for example, power in neighboring Austria or Germany can be 2–3× higher for industry). Hungary and Bulgaria also traditionally had cheap power (regulated rates), but those are outside our scope here.

- **Poland's** power prices, once moderate, spiked in 2022–2023 due to high coal and gas costs, but government interventions capped rates for large consumers. In 2023–24, many Polish data centers were paying in the range of €90–120/MWh effective, which is high. The expectation is that as Poland adds renewables, the average price will stabilize and potentially drop by late 2020s, but near-term volatility remains if global fuel prices swing. To manage this, some operators have locked in multi-year contracts or invested in energy efficiency to cut consumption.

- **Romania and the Baltics** had some of Europe's most volatile pricing in 2022 due to reliance on imports and gas. Romania's cap is due to expire after 2025, so data centers there are anxious to secure PPAs. A notable first in Eastern Europe was **Bulgaria's hybrid PPA** in 2025 – where Teva Pharmaceutical signed a 15-year contract for a new **122 MW solar farm plus 200 MWh battery storage** to supply its facilities[80]. This innovative deal (the region's first combining storage in a PPA) will provide Teva with 60 GWh of clean power annually at a fixed price[81]. Such arrangements may inspire data center operators in CEE to pursue similar long-term PPAs bundling wind/solar with storage, insulating them from spot market chaos.

- **PPA Market in CEE:** Power purchase agreements are newer in CEE but growing quickly. For instance, **Orange Polska** (a telecom) signed a 10-year PPA for a 36 MW wind farm in 2021[79], guaranteeing ~125 GWh/year of renewable power (about 20% of Orange's needs) at a stable price. In 2023, **Amazon** announced multiple renewable energy investments in Europe including Poland – one deal is a 28 MW PPA with OX2 for Polish onshore wind[82]. These moves show that corporate offtakers (including data center operators and big tech) are now actively procuring green energy in CEE. While Western Europe has a more mature PPA market, CEE is catching up: expect 15- to 20-year PPAs to become standard for large facilities,

often signed at attractive rates given the lower renewable development costs in the region. The flip side is that as more companies seek PPAs, prices for those deals may rise (a trend already noted by analysts[83]).

Government Incentives and Roadmaps: Many CEE governments link data center investment with their energy and digital strategies:

- Poland's government not only provides tax incentives for data centers (as covered earlier) but also explicitly supports renewable energy for the sector. There are discussions about dedicating portions of upcoming offshore wind farms to power high-tech industrial zones (data center campuses on the Baltic coast are a future possibility). Also, the "Polish Investment Zone" incentives often include enhanced support if a project incorporates energy-efficient or low-carbon technologies (e.g. extra tax relief for waste-heat reuse or on-site renewables).

- The Baltic governments have been courting data center projects by emphasizing their green grids. Lithuania's economy ministry launched a program in 2023 to attract large data center operators, highlighting that companies can reach 100% renewables via the national grid by buying Guarantees of Origin (since Lithuania exports a surplus of GoOs from its wind farms). Estonia similarly has invited proposals for data parks near its power plants where waste heat could be used for district heating.

- Romania and Croatia are leveraging EU recovery funds to improve grid resilience and potentially co-finance data center-related infrastructure (like high-voltage connections to industrial parks). Romania's inclusion of data centers in its Recovery Plan is notable – it essentially earmarks money to ensure public-sector data centers are state-of-the-art and energy efficient, which indirectly benefits the private sector by upgrading fiber and power in those locations.

In summary, the **power equation in CEE is mixed**: Poland grapples with high emissions but is investing heavily to pivot to clean energy; Czechia offers rock-bottom prices but needs faster grid deployment; Slovakia enjoys clean, stable power in abundance; Romania has huge growth but must tame its energy volatility; the Baltics just solved their biggest risk (grid independence) and are full steam toward renewables; and Croatia has plenty of green potential waiting to be unlocked. For data center investors, this means careful due diligence on a site's power profile is crucial – but also that **opportunities exist to turn energy into a competitive advantage**. For example, an operator can locate a high-density, AI-focused data center in Slovakia or Estonia to take advantage of low-carbon electricity, or choose Poland but sign a large PPA with a new wind farm developer to hedge cost and carbon. Governments in CEE are generally supportive and increasingly coordinate energy and digital policies, which bodes well for the sector's sustainable growth. (See table below for a comparative snapshot of power metrics by country.)

Country	Grid Low-Carbon Energy	Typical Power Cost (Industrial)	Energy Development Highlights
Poland	~20–40% low-carbon (rest coal)[75] *High CO_2 intensity (~0.75 kg/kWh)*	~€0.10–0.12/kWh (volatile; capped in 2023–24)	6 GW Baltic offshore wind by 2030; 1st nuclear plant ~2033[77]; 1,200 MW grid capacity reserved for DCs[7]; PSE committed **1,200 MW of grid capacity specifically for data center development** through 2034
Czechia	~50% low-carbon (36% nuclear, 14% renew.)	**€0.07/kWh** (Europe's lowest)[15]	New Dukovany reactor by ~2036; coal phase-out by 2033; incentives for waste-heat reuse in DCs[10]
Slovakia	**~85% low-carbon** (55% nuclear, 30% hydro/renew.)[56] *Very low CO_2 (~0.1 kg/kWh)*	~€0.09/kWh (stable)	New Mochovce-3,4 reactors online 2023–24 (total 942 MW); grid often in surplus; exploring hydrogen storage
Romania	~45% low-carbon (25% hydro, 20% nuclear)	~€0.08–0.11/kWh (capped at €0.08 for now)[45]	NuScale SMR (6×77 MW) planned ~2028[46]; major wind/solar tenders (incl. offshore wind in Black Sea); EU funds for grid upgrade
Estonia	~30% low-carbon (renewables); dropping oil-shale by 2030	~€0.10/kWh (market-based Nord Pool price)	Grid synced to EU 2025[53]; considering small modular reactor ~2035; large-scale wind (onshore & Gulf of Riga) in pipeline; Greenergy Tallinn holds **EN 50600 Class 4 certification** – the only facility in the Baltics and Finland with this highest resilience rating
Latvia	~55% low-carbon (large hydro + renewables)	~€0.11/kWh (Nord Pool price)	New wind farms under construction (onshore); planning Baltic offshore wind with Estonia; strong emphasis on hydro balancing
Lithuania	~30% low-carbon (renewables; no nuclear)	~€0.10/kWh (Nord Pool price)	Targeting **70% renewables by 2030**[50]; 200 MW battery storage online; offshore wind auction 700 MW ongoing
Croatia	~50% low-carbon (hydro+renewables)	~€0.10–0.13/kWh (imports affect price)	Easing of grid fee policy to unlock ~1 GW renewables[60]; EU funds for solar in Dalmatia; new interconnectors to Slovenia/Hungary operational

Table: Energy profile of CEE countries relevant to data centers. Low-carbon includes renewables, hydro, and nuclear. Power costs are indicative averages; actual data center tariffs may vary. All countries have 2050 net-zero commitments via the EU.

Outlook and Conclusion: Sustained Growth Trajectory Through 2030

Despite global economic uncertainties, CEE data center markets are positioned for **sustained robust growth through 2030** and beyond. The fundamental drivers – insatiable digital demand (especially AI and cloud), the push for data sovereignty, and the overflow from capacity-constrained Western hubs – remain firmly in place. We conclude with key outlook themes:

- **Regional Growth Leadership: Poland** will maintain its role as CEE's flagship market. It has the largest pipeline of projects and strong government backing. With PSE's planned grid expansions supporting 1,200 MW of new DC load by 2034[7], Poland can accommodate multiple new campuses. We expect Warsaw to continue attracting big investments, but secondary cities will claim a growing share of projects as Warsaw's urban sites and substations become saturated. By 2030, Poland's operational capacity (including cloud regions) is likely to **triple** from today's levels, firmly establishing it as a top-tier European market (comparable to secondary Western markets like Madrid or Milan).

- **Emerging Hyperscale Hub: Romania** is set to be the fastest-growing CEE market in percentage terms. If it can manage energy volatility – via on-site generation or long-term renewable contracts – Romania could see a hyperscaler region launch which would instantly add tens of megawatts. The ClusterPower model (large-scale campus with private power) provides a template other investors may follow. By 2030, Romania's capacity could rival or even overtake Czechia's, making it the clear #2 in CEE. The support of EU funds and the Romanian government's tech-forward stance (e.g. funding AI and cloud projects) de-risks investment and suggests **double-digit annual growth** will continue.

- **Turning Point for Czech Republic: Czechia** faces a pivotal moment. If the recent policy improvements succeed in easing barriers, Prague could re-attract projects from hyperscalers who currently skip it. Microsoft's interest could revive, or AWS/Google might consider a smaller zone in Prague to complement Warsaw. On the other hand, if bureaucracy and grid delays persist, Czechia may see its market lag in the regional race, with more customers served out of Poland or Germany. The next 2–3 years will determine this trajectory. The fact that CRA's 26 MW project is underway is a positive sign – upon its completion, it will either validate that large builds *can* be done in Czechia, or highlight remaining challenges. We lean

optimistic that Czechia will adapt, given the economic stakes, and thus expect steady growth and perhaps a **renewed hyperscaler foray by 2026–27**.

- **Leveraging Integration:** The **Baltic States** will reap advantages from their full integration into Europe's grid and digital single market. Their capacity will expand steadily, and they'll market themselves as *"Nordic-lite"* destinations – offering green power and cool climate at lower cost. Don't be surprised if a large Nordic operator or cloud service extends into Baltics (for instance, a Finnish company building in Lithuania to serve EU clients). The Baltics won't match the scale of Poland or Romania, but their combined market size could quietly double by 2030. Importantly, they provide geographical diversity for redundancy (some companies might use Tallinn or Vilnius as backup sites for operations in Stockholm or Warsaw).
- **Smaller Markets and New Frontiers: Slovakia and Croatia** will grow modestly but steadily, each filling niche roles – Slovakia for its green power and proximity to Vienna, Croatia for regional colocation and as a beachhead into former Yugoslav markets. By 2030, each might have a few tens of megawatts more than today, nothing dramatic but solid progress. **Western Ukraine**, while not an immediate factor, looms as a potential game-changer in the 2030s. Should peace and reconstruction proceed, by the end of this decade we could see the first cross-border data center campus serving Ukraine's needs from the Zakarpattia region, effectively adding a new CEE market to the map. It's a wildcard, but one that data center strategists are already contemplating for the long term.

In conclusion, Central and Eastern Europe offers what Western Europe increasingly cannot: **room to grow** – in terms of land, power capacity, and untapped demand. For developers and investors prepared to navigate the nuances (from Polish grid upgrades to Romanian PPAs to Baltic links), the region promises high growth in one of the world's most capital-intensive and strategically important sectors. The data center investment boom is transforming CEE real estate and infrastructure, bringing digital economies Eastward. As advisors and asset managers, we at DBS see opportunities spanning development consulting (site selection, permitting, incentive negotiation), transaction advisory (M&A, joint ventures, financing deals), and strategic consulting (market entry plans, hyperscaler partnership development). Each CEE market is at a different maturity stage – from Poland's well-established ecosystem to Romania's ascendant profile to Ukraine's horizon potential – creating a diverse landscape for informed investors to engage.

How DBS Can Support Your CEE Data Center Strategy

DBS Development & Consulting provides specialized advisory services across the CEE data center investment lifecycle:

Development Advisory Site selection and due diligence | Grid connection strategy and utility negotiations | Permitting pathway navigation | Investment incentive optimization | Construction procurement support

Transaction Advisory Acquisition target identification and screening | Joint venture structuring | Financing arrangement and lender coordination | Buy-side and sell-side due diligence | Post-acquisition integration support

Market Entry Strategy Competitive landscape analysis | Regulatory and political risk assessment | Hyperscaler relationship development | Partnership and JV partner identification | Go-to-market roadmap development

Western Ukraine / Zakarpattia Early-stage market reconnaissance | Local stakeholder and partner identification | Risk mitigation framework development | DFC/MIGA engagement support | Phased entry strategy design

With two decades of CEE real estate and infrastructure experience, multilingual capabilities across six regional languages, and established relationships with developers, investors, and government stakeholders, DBS offers principals the regional expertise required to execute successfully in Europe's fastest-growing data center markets.

***Dávid Bořuta**, Managing Partner, DBS Development & Consulting* [84][30]
Prague, Czech Republic david@dbsdc.com | +420 732 390 870
linkedin.com/in/davidsboruta

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