



ASSESSMENT OF THE INVESTMENT POTENTIAL FOR DATA CENTERS IN WESTERN POMERANIA



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Amid rapid technological and geopolitical change, the West Pomeranian region is increasingly recognizing digital infrastructure as a key driver of economic resilience and growth. Data centers form the backbone of modern economies, enabling the development of the internet, artificial intelligence, and large-scale data processing.

West Pomerania offers strong potential to serve as a supra-regional hub for digital infrastructure—a role that remains underutilized. This potential is driven by a combination of geographic location, climate conditions, energy infrastructure, and investment readiness.

A key advantage of the region is its renewable energy capacity. In recent years, renewable energy generation has exceeded local demand, creating favorable conditions for energy-intensive investments such as data centers. Long-term power purchase agreements at stable prices can significantly reduce operating costs while supporting the transition toward carbon-neutral operations. Ongoing investments in grid modernization and energy storage further enhance system stability.

The region's climate supports the use of energy-efficient cooling solutions, including free cooling based on low ambient temperatures. A long period of moderate temperatures and limited heatwaves enables substantial energy savings. Additionally, abundant water resources create opportunities for advanced cooling systems, including hybrid solutions.

West Pomerania also offers access to a qualified workforce, supported by a relatively high share of technical graduates and academic institutions aligned with the needs of the digital and energy sectors. Accessibility is further strengthened by proximity to Berlin's international airport.

From a risk perspective, the region benefits from a stable security environment, declining crime rates, and strong national performance in cybersecurity rankings. Environmental risks are relatively low compared to many global regions, with limited exposure to extreme weather events and no seismic risk.

Overall, the region combines favorable environmental, infrastructural, and institutional conditions, positioning it as a competitive location for scalable and sustainable data center development.



Global Market Trends and Drivers

The global data center market is undergoing a structural shift toward sustainability. Over 100 European operators have committed to climate neutrality by 2030 under the Climate Neutral Data Center Pact. This aligns with increasing focus on energy efficiency, carbon reduction, and renewable energy integration.

As highly energy-intensive assets, data centers are becoming platforms for innovation in cooling, energy storage, and waste heat reuse. At the same time, their rapid growth presents challenges for power systems, requiring deeper integration of low-emission energy solutions.

European and Polish Market Outlook

The importance of non-capital locations is increasing. Regions such as Wielkopolskie, Pomorskie, and West Pomerania are emerging as attractive “green alternatives” with strong renewable energy potential.

Poland is entering a phase of accelerated data center market growth, driven by rising demand for computing power, hyperscale investments, and capacity constraints in major European hubs (FLAPD markets). By 2030, the national market is expected to nearly triple in capacity.

Future growth will increasingly shift beyond Warsaw due to infrastructure limitations and resource pressure in the capital region. This creates opportunities for regions offering cooler climates, available land, and access to low-emission energy.

In this context, West Pomerania stands out as one of the most promising locations for low-carbon digital infrastructure in Poland.

Location Factors and Growth Conditions

Energy availability is the dominant factor shaping data center location decisions. Grid stability, predictable pricing, and access to low-carbon energy sources are critical.





Regions offering scalable infrastructure, stable regulatory environments, and strong renewable energy integration will gain importance. West Pomerania combines high renewable energy penetration, favorable climate conditions, and ongoing investments in grid resilience, supporting the development of green data centers.

Spatial and Planning Conditions

The region offers favorable land availability, including large-scale investment sites suitable for hyperscale developments. While protected areas impose some constraints, they do not significantly limit overall investment potential.

Existing special economic zones provide competitive land resources, and large plots—such as the 180-hectare “Karlisko” subzone—demonstrate readiness for large infrastructure projects. The key challenge lies in efficient permitting and regulatory processes.

Climate and Environmental Conditions

A long “cooling window” (temperatures below 20°C for much of the year) enables widespread use of free

cooling technologies, improving energy efficiency and sustainability.

The region also benefits from one of the best air quality levels in Poland, which supports infrastructure reliability and reduces maintenance requirements. Combined with strong wind energy potential, these conditions support decarbonization strategies for data center operators.

Climate Risks and Natural Hazards

West Pomerania is characterized by relatively low exposure to extreme natural hazards such as hurricanes, tornadoes, or earthquakes.

Risks related to drought, flooding, and localized water management exist but are manageable through proper site selection. Overall, the region offers high environmental predictability and low operational disruption risk.

Labor Market Potential

Data centers can contribute to local employment, particularly in construction and services. The region’s

labor structure—low agricultural employment and strong service sector presence—supports workforce mobility.

A solid industrial base and technical education system create favorable conditions for workforce absorption, although increasing automation may limit long-term job creation. Talent shortages in complementary sectors (e.g., energy and security services) may require targeted incentives.

Talent and Academic Collaboration

The region’s “Future Technologies and Services” specialization aligns with digital infrastructure, automation, and AI development.

A high share of technical students (above the national average) supports workforce availability. Szczecin and Koszalin serve as key academic hubs, offering opportunities for collaboration in research, pilot projects, and workforce development.

However, large-scale hyperscale investments may require further strengthening of the local talent ecosystem, particularly in high-power energy systems and advanced data technologies.

Energy Infrastructure

West Pomerania benefits from a well-developed and continuously upgraded power grid. High-voltage transmission lines and substation density support potential high-capacity connections, particularly in key corridors such as Szczecin, Stargard–Goleniów, and the Koszalin region.

Ongoing investments—including new 400 kV lines and energy storage projects—will further improve system reliability and connection potential. However, connection conditions must be assessed individually, with early engagement with grid operators recommended.


Renewable Energy Potential



The region is a national leader in renewable energy, particularly wind power. In 2023, renewable generation reached

122.7%

of local demand, indicating a structural energy surplus.



West Pomerania is well-connected and accessible, ideal for regional and backup data centers, but site-specific infrastructure varies.

This creates favorable conditions for large energy consumers such as data centers, which can help balance the system. However, actual connection capacity depends on grid conditions, not just generation levels.

Emerging models such as shared grid connections between renewable producers and industrial consumers may further improve efficiency but require regulatory and technical coordination.

Telecommunications and Transport Infrastructure

The region has a growing telecommunications base, with expanding fiber networks and increasing bandwidth availability. However, infrastructure maturity and redundancy remain below leading Polish data center hubs.

West Pomerania has strong potential as a regional and backup (edge, disaster recovery) data center location, though each site requires individual connectivity assessment.

Transport infrastructure supports accessibility, particularly in the western part of the region, with strong road and rail networks and proximity to Berlin Brandenburg Airport. Accessibility varies across the region, making location selection critical.

Security and Cybersecurity

The region offers a stable security environment, with declining crime rates and low terrorism risk. At the same time, increasing risks to critical infrastructure require advanced physical and organizational protection measures.

Poland ranks highly in global cybersecurity indices and continues to invest in national cyber resilience. For data center operators, this means operating in

a secure but risk-aware environment with strong institutional support.

Energy Security and Resilience

The region operates within a power system undergoing significant modernization. Reliability indicators show stable performance, with no major structural outages recorded.

Ongoing investments in transmission infrastructure and system flexibility are strengthening resilience. While exposure to weather-related and system risks exists, overall conditions support reliable long-term operation of energy-intensive infrastructure.

Energy Cost and Price Stability

West Pomerania offers a strong long-term advantage for data center development due to its high share of renewable energy, enabling cost models based on low-carbon power.

Following volatility in 2021–2023, electricity prices in Poland stabilized in 2024, returning to pre-crisis levels. Increased renewable generation and a more diversified market structure support flexible procurement strategies, including long-term PPAs.

As an energy system in transition, Poland still presents regulatory and infrastructure-related risks. However, in regions such as West Pomerania—characterized by high renewable penetration—industrial consumers benefit from a favorable local energy context and growing access to competitively priced green energy.

Cooling Systems and Regional Potential

West Pomerania provides strong environmental conditions for energy-efficient cooling strategies,

including air-based, water-based, and hybrid free cooling systems.

A key advantage is the long cooling window: temperatures below 20°C occur for approximately 247–275 days per year (~74% of the year), with very few extreme heat days.

This enables significant reductions in cooling-related energy consumption.

The region also offers substantial water resources, supporting water-side free cooling solutions. However, local environmental constraints—such as water quality and competing usage—require careful site selection and planning.

Globally, leading data centers achieve high efficiency (PUE < 1.2) through advanced cooling strategies, many of which can be effectively implemented in this region. There is also potential to integrate cooling systems with local energy infrastructure, improving overall operational efficiency and resilience.

Public–Private Partnerships (PPP)

Public–private partnerships could play a role in accelerating data center development in the region, particularly for strategic or public-interest infrastructure.

PPP models may help mitigate investment risk, attract private capital, and support the development of shared or certified digital infrastructure. While not yet widely used in the data center sector, European experience suggests strong potential—provided projects are well-structured and aligned with investor expectations.



Community Expectations and ESG Considerations

While data centers bring economic benefits, they may raise concerns related to energy and water consumption, environmental impact, noise, and emissions.

In West Pomerania—characterized by dispersed settlements and protected natural areas—these concerns may be more pronounced. However, international experience shows that most negative impacts can be effectively mitigated through modern technologies, efficient cooling systems, and responsible site planning.

Transparent communication, stakeholder engagement, and environmental certifications (e.g., LEED, BREEAM) are critical for ensuring social acceptance and strengthening the investment case.

Development Outlook for Data Centers

West Pomerania has strong long-term potential for data center development, driven by favorable energy and climate conditions, competitive labor costs, and a growing technical talent base.

The region is well-positioned to develop as a **“green infrastructure hub”** for northern Poland. However, current limitations include relatively low local demand and lengthy grid connection procedures.

Future growth will depend on improving access to grid capacity, attracting technology investors, and leveraging existing energy and climate advantages. The region is particularly suited for regional and mid-scale facilities (Tier II+/Tier III), rather than hyperscale developments under current conditions.

Demand is expected to grow steadily across sectors such as maritime logistics, chemicals, offshore energy, finance, public administration, and ICT.

This creates a stable, diversified demand base concentrated around the Szczecin–Świnoujście economic corridor.

Location Potential Within the Region

West Pomerania offers a broad and diverse range of potential sites for data center investments.

High-potential municipalities include Karlino, Sławno, Myślibórz, Stargard, Kołobrzeg, and Szczecinek. More infrastructure-ready locations include areas around Szczecin, Stargard, and Police, while lower-risk sites are available in smaller municipalities such as Stepnica, Pyrzyce, and Polanów.

Site selection remains highly dependent on investor requirements and should consider both opportunities and local constraints.

Regional Benchmarking

Compared to neighboring regions in Poland and Germany, West Pomerania offers a balanced investment profile.

The region performs strongly in key areas such as energy stability, cooling conditions, and digital infrastructure, without significant structural weaknesses. It represents a competitive alternative to more saturated markets such as Pomerania or Mecklenburg-Vorpommern.



Energy Security



Efficient Cooling



Investment Land



Workforce & Innovation



Security & Resilience



Development Potential

Conclusion

Data centers are becoming critical infrastructure in the digital economy, driven by rapid growth in AI and data processing demand. The market is expected to expand significantly in the coming decade, both globally and in Poland.

At the same time, the sector is highly diverse – requirements vary significantly depending on scale, technology, and business model. Key success factors include energy availability, grid reliability, and connectivity, while climate, workforce, and security act as supporting factors.

West Pomerania stands out as a net energy producer with strong renewable capacity and ongoing investments in grid infrastructure and energy storage. This translates into high supply security and long-term development potential.

The region offers favorable climate conditions for efficient cooling, good availability of investment land, and improving digital infrastructure. While environmental risks such as flooding or drought exist, they are localized and manageable through proper planning.

Human capital remains moderate in scale but is supported by strong technical education and alignment with regional development strategies. Collaboration with academic institutions provides additional opportunities for workforce development and innovation.

Security conditions are favorable, with low crime rates and strong cybersecurity capabilities at the national level, despite growing global risks.

Overall, West Pomerania offers a **solid and underutilized platform for data center development**, particularly for regional and resilient infrastructure. While not currently a primary location for hyperscale projects, it has the potential to evolve in this direction with further investment in grid capacity and system-level infrastructure.

In the medium to long term, the region can position itself as a **reliable, cost-efficient, and sustainable backbone of Poland's digital infrastructure**, particularly by leveraging its competitive advantage in low-emission energy.

RECOMMENDATIONS

Key Directions for Shaping Conditions for Data Center Investments

This section outlines key strategic directions for shaping favorable conditions for the development of data processing infrastructure. The recommendations focus **on energy, telecommunications, environmental, institutional, and social factors**, which determine the predictability of investment processes and the long-term operational stability of data centers.

ALIGNING LOCATION DECISIONS WITH POWER AVAILABILITY AND GRID INVESTMENT

Scope: Energy and transmission networks
Implementation level: Strategic, operational
Target stakeholders: Power grid operators, data center investors

The West Pomeranian region benefits from a well-developed power system in northern Poland, based on multiple 220/110 kV substations and nodes planned for expansion. However, grid availability varies significantly across the region.

The highest connection potential is concentrated in areas with dense substation infrastructure and proximity to the 220/400 kV network. Key high-potential areas include **Szczecin, Świnoujście, Kołobrzeg, Szczecinek**, and the **400 kV corridor Krajnik–Morzyczyn–Dunowo–Słupsk–Żarnowiec**.

It is recommended that **site selection for data centers be initially limited to areas with high or good access to substations and located near the 400 kV transmission corridor**. Areas with lower grid accessibility should only be considered in alignment with ongoing and planned grid investments (2026–2029), including:

- construction of the 400 kV Dunowo–Żydowo Kierzkowo–Piła Krzewina line
- modernization of Morzyczyn substation
- expansion of Reclaw substation

This approach reduces connection risks and improves long-term supply reliability.

LEVERAGING REGIONAL ENERGY SOURCES AND PPAs

Scope: Energy, renewables
Implementation level: Strategic, operational
Target stakeholders: Grid operators, investors

The region has over **4.07 GW of installed renewable capacity**, combined with conventional generation, ensuring a relatively high level of energy security.

It is recommended to:

- integrate renewable energy sources into investment planning
- utilize Power Purchase Agreements (PPAs) with wind and solar producers
- ensure transitional system stability through grid upgrades and energy storage (e.g. planned storage in the Gryfino area)

This reduces supply risks and ensures long-term cost stability.

VERIFYING FIBER INFRASTRUCTURE AS A LOCATION CRITERION

Scope: Telecommunications
Implementation level: Strategic, operational
Target stakeholders: Telecom operators, investors
 The regional network is dominated by fiber infrastructure, supported by **PIONIER nodes in Szczecin and Koszalin, enabling multi-10/100 Gb/s connectivity**.

It is recommended that each location ensures:

- at least **two independent fiber routes from**

different operators

- **minimum 1–2 Gb/s connectivity** as a baseline
- scalability to higher bandwidth in industrial and urban zones

Locations with high **VHCN (>1 Gb/s)** coverage and strong wholesale infrastructure should be prioritized.

Central parts of the region should be treated as **conditional locations**, requiring verification of redundancy and backup routes.

UTILIZING CLIMATIC CONDITIONS FOR COOLING OPTIMIZATION

Scope: Cooling systems

Implementation level: Strategic, operational

Target stakeholders: Investors

The region's moderate climate provides **247–275 days per year below 20°C**, enabling extensive use of free cooling.

Recommended approach:

- hybrid cooling systems (air-air, air-liquid)
- limited use of water-based cooling only where sustainable water resources are confirmed
- integration with renewable energy and energy storage systems

This improves energy efficiency (PUE) and reduces operational costs.

ALIGNING EDUCATION WITH DATA CENTER SKILLS DEMAND

Scope: Workforce development

Implementation level: Strategic, reputational

Target stakeholders: Universities, policymakers, investors

Despite a strong technical education base, the region lacks established programs in **AI, Data Science, and telecommunications engineering**.

Recommendations:

- develop targeted educational programs in critical infrastructure, automation, and ICT
- establish partnerships with universities
- implement **investor-led training and certification programs (e.g. Data Center Academy)**

This mitigates long-term workforce risks.

INTEGRATING ESG PRINCIPLES INTO REGIONAL DEVELOPMENT

Scope: Sustainability, cooperation

Implementation level: Strategic

Target stakeholders: Local authorities, investors

The region offers strong potential for **green data centers**, based on:

- high renewable energy share
- cooling optimization potential

It is recommended to:

- integrate waste heat recovery with district heating systems
 - ensure high energy efficiency and responsible water use
 - minimize environmental impact from the design stage
-

DEVELOPING PUBLIC-PRIVATE PARTNERSHIPS (PPP)

Scope: Institutional cooperation

Implementation level: Strategic

Target stakeholders: Public sector, investors

While PPPs in Poland are mainly used in utilities, **digital infrastructure remains underdeveloped**.

Growing demand for cloud services from the public sector creates opportunities for:

- joint public-private data center investments
 - infrastructure for administration, education, and research
-

RESPONSIBLE SITE SELECTION AND SOCIAL ACCEPTANCE

Scope: Social factors

Implementation level: Strategic

Target stakeholders: Local authorities, investors

Social risks are linked to:

- environmentally sensitive areas
- tourism-oriented regions

Key recommendations:

- transparent reporting on energy and water use
- environmental certifications (LEED, BREEAM)
- early-stage public consultations
- mitigation of noise, light, and landscape impact

This increases public acceptance and reduces project delays.

assessment is based on a generalized evaluation, which must be verified against specific investor requirements and local conditions.

Locations are divided into **primary (priority)** and **secondary** categories.

Six priority areas have been identified as the most favorable:

- **Stargard**
- **Szczecin / Police / Dobra**
- **Gryfino**
- **Koszalin / Sianów / Biesiekierz**
- **Karlıno**
- **Myślibórz**

Secondary areas include:

- Sławno / Postomino
- Polanów / Bobolice / Biały Bór
- Szczecinek

Areas to monitor:

- Wałcz
- Choszczno / Recz

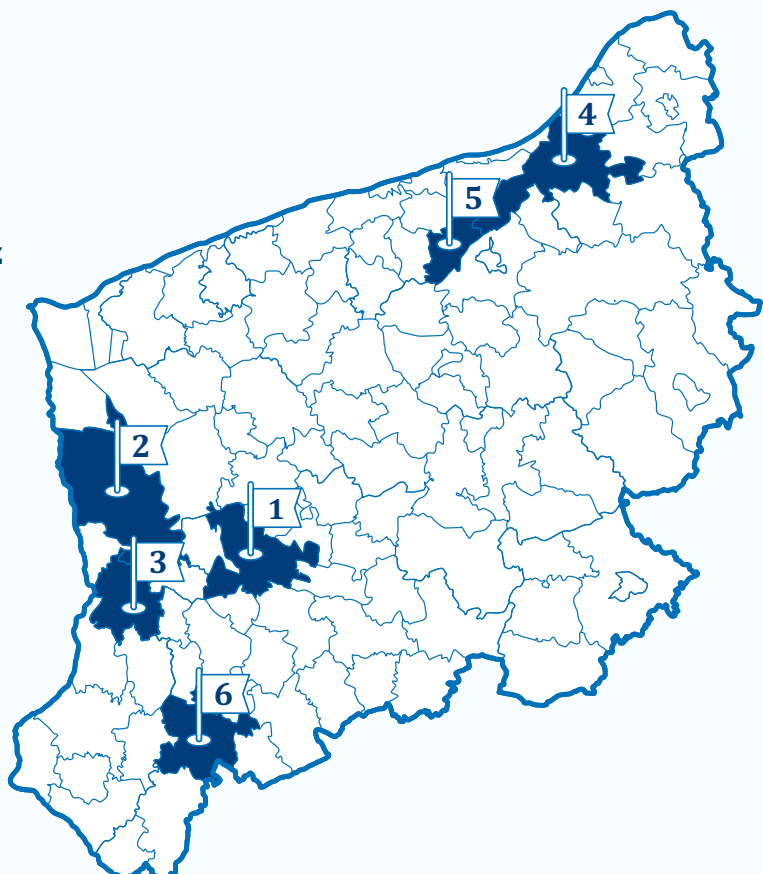
Some locations (e.g. Barlinek, Połczyn-Zdrój) may face significant regulatory constraints despite favorable spatial indicators.

AREAS WITH DATA CENTER LOCATION POTENTIAL

Based on spatial analysis, desk research, and expert input, several locations can be identified as suitable for data center development. Each area offers different advantages and constraints, and their

1. **Stargard**
2. **Szczecin / Police / Dobra**
3. **Gryfino**
4. **Koszalin / Sianów / Biesiekierz**
5. **Karlıno**
6. **Myślibórz**

0 15 30 km



PRIORITY LOCATIONS:

1. STARGARD AREA

Strengths:

- Excellent access to power and transport infrastructure
- Availability of investment-ready land
- Proximity to Szczecin (workforce, academia)
- Access to S10 expressway

Constraints:

- Urban density → potential social impact
- Flood risk near the Ina river

Recommended sites:

- Industrial Park of Modern Technologies (southern Stargard)
- Areas near the S10 corridor

Investor profile:

Suitable for regional and international investors of various scales.

2. SZCZECIN / POLICE / DOBRA AREA

Strengths:

- Strong grid infrastructure with redundant supply
- Access to skilled workforce and business clients
- Proximity to port and logistics sector (Świnoujście)

Constraints:

- High population density
- Higher land and construction costs
- Potential interference from railways/airport (to be verified)

Recommended sites:

- Areas near Tanowo and Witorza (Police municipality)
- Border zones between Szczecin and Dobra

Investor profile:

Ideal for small- and mid-scale facilities requiring proximity to demand.

3. GRYFINO AREA

Strengths:

- Strategic energy hub (Dolna Odra power plant)
- Access to 400/220/110 kV infrastructure
- Planned energy storage
- Proximity to Szczecin

Constraints:

- Dependence on energy sector investment timelines

Recommended sites:

- Existing 4.68 ha investment plot (expandable)
- Future post-industrial energy sites

Investor profile:

Energy-intensive or reliability-focused investors.

4. KOSZALIN / SIANÓW / BIESIEKIERZ AREA

Strengths:

- Growing grid and fiber infrastructure
- Access to workforce and academic institutions
- Good road connectivity (S6)

Constraints:

- Limited international accessibility
- Distance from major markets

Recommended sites:

- Areas near S6 (NW Koszalin, Sianów, Biesiekierz)

Investor profile:

Local or public sector investors.

5. KARLINO AREA

Strengths:

- Large investment plots (up to 163 ha)
- Proximity to 400 kV infrastructure
- Multiple substations

Constraints:

- Limited international accessibility

Recommended sites:

- Areas near Koszalińska/Szczecińska roads

Investor profile:

Including hyperscale investors (large land availability).

6. MYŚLIBÓRZ AREA

Strengths:

- Strong overall location score
- Proximity to S3 and German border
- Access to 400 kV infrastructure
- ~150 km to Berlin airport

Constraints:

- Distance from major urban centers

Recommended sites:

- Renice investment area (27.8 ha)

Investor profile:

Broad range of private investors.





**The region's key
advantage is access to
skilled technical staff.**

SECONDARY LOCATIONS:

7. SŁAWNO / POSTOMINO AREA

Strengths:

- Access to 400 kV and 110 kV lines
- Partially covered by wind energy zones
- Midway between Koszalin and Słupsk, near voivodeship border

Constraints:

- Poor international accessibility
- Distance from major urban centers and markets

Recommended sites:

- Sławno Industrial Zone (max 20 ha)
- Areas near Sławno/Postomino border along Wieprz River

Investor profile:

Local or public sector investors

8. POLANÓW / BOBOLICE AREA

Strengths:

- Access to 110 kV, 220 kV, 400 kV lines
- High-class land (mainly Polanów)
- Good regional road connections (S11, national roads)

Constraints:

- No investment-ready plots in PAIH database
- Distance from larger urban centers

Recommended sites:

- Areas along S11 near Bobolice
- Southern Polanów municipality (between Kępiny and Kania)

Investor profile:

Local or regional investors, small- to medium-scale projects

9. SZCZECINEK AREA

Strengths:

- High-class land and largest city in SW part of voivodeship
- Good road (S11) and rail connections
- Access to 110 kV, 220 kV, 400 kV lines

Constraints:

- Distance from major regional centers
- No investment-ready plots registered

Recommended sites:

- South of Szczecinek (Leśna Street, Miękowo)

Investor profile:

Public sector or regional investors

10. WAŁCZ AREA

Strengths:

- Renewable energy potential
- S10 under construction
- High VHCN fiber-optic coverage

Constraints:

- Limited energy infrastructure (one GPZ, 110 kV line)
- No investment-ready plots

Recommended sites:

- Eastern and northern parts of city near S10
- Existing industrial facilities and solar plant

Investor profile:

Public sector or investors able to expand infrastructure

11. CHOSZCZNO / RECZ AREA

Strengths:

- Basic technical infrastructure for data centers
- Low environmental risk
- Solar energy potential

Constraints:

- Limited high-voltage access (110 kV lines, two GPZ)
- Small flood risk near Ina River

Recommended sites:

- Near Wielgoszcz or north of Choszczno along route 151

Investor profile:

Local investors, potential for regional/public in future

12. BARLINEK / POŁCZYN-ZDRÓJ AREA

Strengths:

- Large high-class land areas
- Basic energy and telecom infrastructure
- Minimal environmental hazards

Constraints:

- Partial presence of protected landscape areas
- No outstanding locational advantages

Recommended sites:

- Barlinek: Moczkowo, Mostkowo
- Połczyn-Zdrój: town itself or nearby Międzyborze

Investor profile:

Local investors aware of protected area constraints



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