



# K2A Knaust & Andersson Fastigheter AB (publ) Shades of Green assessment

June 8<sup>th</sup>, 2021



Sector: Real estate



Region: Sweden

**K2A is a Swedish real estate company focusing on long-term management of self-produced rental buildings.** The majority properties in K2A’s portfolio are student housing and smaller family homes.

Shades of Green by annual revenue 2020

Shades of Green by investments in 2020

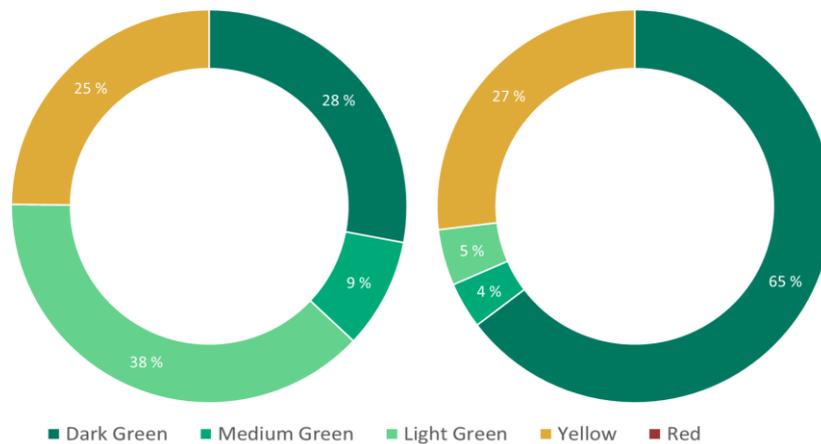


Figure 1: K2A’s 2020 revenue and investments by Shade of Green<sup>2</sup>.

**In 2020, 75% of revenue, 70% of operating costs and 73% of investments came from assets with some Shade of Green.** The Shade of Green assigned to a property reflects its overall climate risk and environmental impact. The shading also reflects K2A’s strong environmental governance, the company’s track record of energy efficiency improvements and ambitious targets on green building certification. K2A has a particular focus on using locally sourced wood as a building material. A large number of LCA studies show that wood-frame building results in lower primary energy and GHG emission compared to non-wood alternatives including concrete and steel. Wooden buildings and buildings that have other environmental benefits, as demonstrated by a high level of energy efficiency or green building certification, are assessed as green.

**The Shade of Green assigned to K2A’s properties reflects the energy use of the building, level of environmental certification and material choice.** Dark Green is assigned to wooden buildings with a high level of building certification, or highly energy efficient wooden building (EPC label of A or B). Many of these buildings also have geothermal heating as an energy source which contribute to the Dark Green shading. Medium Green is assigned to properties with a Passive

## Nasdaq Green Designation

Based on this review, K2A meets the requirements for Nasdaq Green Equity Designation set out in the Nasdaq Green Equity Principles<sup>1</sup>.



<sup>1</sup> CICERO Shades of Green is an approved reviewer to assess alignment with the Nasdaq Green Equity Principles, [Nasdaq.com/Solutions/Nasdaq-Nordic-Green-Designations](https://www.nasdaq.com/Solutions/Nasdaq-Nordic-Green-Designations)

<sup>2</sup> For the purpose of this assessment, revenue and turnover are used interchangeably, as are operating costs and OPEX, investments and CAPEX



House certification, highly energy efficient building (EPC label B), and wooden buildings with an energy use corresponding to regulations (EPC C) combined with an ongoing or existing Miljöbyggnad in-use Silver certification. The in-use certification ensures a follow-up of energy use and other environmental aspects of building management. Light Green is assigned to wooden properties. Many of these properties have an Miljöbyggnad in-use Silver certification, contributing to the Light Green shading. Some Light Green properties have high energy intensity. However, the environmental benefits associated with the material choice qualify the properties for the shade along with K2A's track record of energy efficiency improvements. To maintain the green shading, the energy intensity of these buildings must be significantly improved over time.

**The analysis of properties is based on our assessment of K2A's governance and management of these key environmental concerns: GHG emissions, Energy use, Building certifications, Materials and waste, Climate Resilience & Transportation solutions.** K2A's average energy intensity was significantly improved from 2019 – 2020 and it is positive the K2A measures total energy use<sup>3</sup>. The company has a focus on certification, all self-constructed properties since 2018 are Nordic Swan Ecolabel and K2A has certified most of their existing buildings according to Miljöbyggnad iDrift. K2A has completed a climate risk inventory of all properties, analyzing physical climate change risks and recommended remediation actions. CICERO Green is impressed that climate risk data on properties is included in corporate reporting.

**The most relevant EU Taxonomy criteria are Acquisition and ownership of buildings, Construction of new buildings and Renovation<sup>4</sup>.** CICERO Green assesses that K2A's activities in new constructions are aligned with the technical criteria in the EU Taxonomy. This represented 42% of total operating expenses and investments in 2020. CICERO Green is at this point unable to determine alignment of K2A's activities related to Acquisition and ownership of buildings or renovation to the technical mitigation threshold. K2A appears to be likely aligned with most DNSH criteria. CICERO Green considers that K2A mainly fulfils the minimum social safeguards of the EU Taxonomy.

**K2A has high transparency on environmental governance structure and good reporting procedures and standards.** K2A has good strategies and short-term goals but lacks clear quantitative climate targets for the medium term. The establishment of a Sustainability Committee, responsible for the design and follow-up of sustainability goals, is welcomed. The sustainability reporting is good and includes impact metrics. We note in particular that K2A carries out climate scenario analysis and risk assessments in alignment with the methodology recommended by TCFD<sup>5</sup>. K2A has procedures in place to secure minimum social safeguards. However, as suppliers' and sub-contractors' human rights and workers' rights risks can be significant in the sector in which K2A operates, we recommend that these are thoroughly mapped in K2A's forthcoming risk assessments.

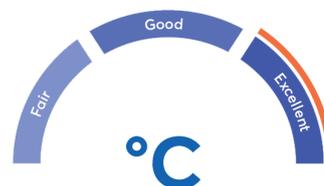


Figure 2 CICERO Green assess K2A's governance structure and practice to be Excellent

Table 1: Sector specific metrics

	Energy use (kWh/m <sup>2</sup> Atemp)	Environmentally certified (% of area)	Emission intensity scope 1 + 2 (kgCO <sub>2</sub> e)	Heated directly by fossil fuels (% of area)
2020	109.6	29%	508 515	2.3%
2019	149.6	10%	525 427	2.6%
2018	150.0	4%	526 327	3.2%

<sup>3</sup> We note that some companies report on 'landlord energy', i.e., the energy use needed for running the property. For residential buildings, the total energy use tends to be considerable higher due to heavy duty appliances and use of hot water.

<sup>4</sup> Minor shares of revenue, operating costs or investments are also related to Installation, maintenance and repair of energy efficient equipment, Installation, maintenance and repair of charging stations for electric vehicles in buildings, Installation, maintenance and repair of instruments and apparatus for measuring, regulating and controlling the energy performance of buildings and Installation and maintenance and repair of renewable energy technologies. See part 2 for full analysis.

<sup>5</sup> <https://www.fsb-tcf.org/publications/final-recommendations-report/>



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# 1 K2A sustainability management

## Company description

K2A is a Swedish real estate company founded in 2013 focusing on long-term management of self-produced rental buildings for all types of housing, but with a focus on housing for students (representing 43% by numbers) and smaller family homes (51% by numbers). The property portfolio further includes community service properties, such as care centres, preschools etc. (6% by numbers)<sup>6</sup>. K2A is involved in the entire value chain, from customer analysis to land acquisition, own industrial production, construction and ultimately long-term ownership and management. By managing its construction process in a sustainable way and using environmentally friendly raw materials, mostly locally produced Swedish wood, K2A has been able to produce the buildings in a resource- and energy-efficient industrial process with lower climate impact compared to conventional house production. This method has made K2A the first manufacturer of prefabricated wooden apartment units that have been licensed to build Nordic Swan Ecolabelled (Sw. “Svanenmärkt”) properties. The goal is that all new construction of properties should be Nordic Swan Ecolabelled or equivalent, and this has been the case since 2018.

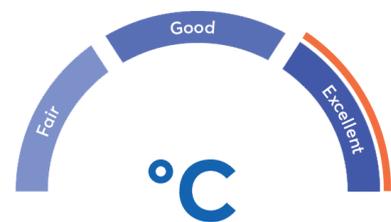
The company is currently operating in 22 locations in Sweden with focus on Stockholm, Mälardalen and a number of selected university cities located in other parts of Sweden, where demand for rental buildings is high.

K2A's real estate portfolio mainly consists of housing built from year 2015 to present. In addition, some older properties have undergone or are undergoing energy saving renovations. As of December 2020, K2A had 7,334 homes in the property and project portfolio, worth SEK 5,783m and with an annual rental revenue of SEK 202m.

In 2020, certification of K2A's existing buildings was initiated according to the Swedish environmental certification system Miljöbyggnad iDrift. This means that all K2A's buildings that are older than 3 years<sup>7</sup> will be environmentally certified in 2021.

## Governance Assessment

K2A has good strategies and short-term goals but lacks clear quantitative climate targets for the medium term. The Nordic Swan ecolabelling will secure long-term improvements in climate and environmental footprints. The decision to establish a special Sustainability Committee in 2020 is welcomed. The Sustainability Committee is responsible for the design and follow-up of K2A's sustainability goals. K2A has also appointed a Sustainability Manager who assists the Sustainability Committee and is responsible for the implementation of measures, review, reporting and follow-up. The sustainability reporting is good and includes impact metrics. We note in particular that K2A carries out climate scenario analysis and risk assessments in alignment with the methodology recommended by TCFD<sup>8</sup>. For handling of resilience issues K2A relies on the green building certification processes, but has in addition commissioned a report analysing physical climate change risks to all of their properties, including recommended



<sup>6</sup> Source: K2A 2020 Annual report

<sup>7</sup> The certification system for buildings in-use (Miljöbyggnad iDrift) have an age limit of 3 years before they are eligible for an in use-certification.

<sup>8</sup> <https://www.fsb-tcfid.org/publications/final-recommendations-report/>



remediation actions. K2A has procedures in place to secure minimum social safeguards. However, as suppliers' and sub-contractors' human rights and workers' rights risks can be significant in the sector in which K2A operates, we recommend that these are thoroughly mapped in K2A's forthcoming risk assessments.

Assessing these elements, CICERO Green concludes that K2A receives a high score for their strategy, policies and governance structure; supply chain policies and environmental considerations towards customers; the integration of climate considerations into their business and the handling of resilience issues; the awareness of social risks and the management of these; and reporting. K2A is therefore given an overall governance score of **Excellent**.

### Sector risk exposure

The below text box highlights some key risks for the real-estate sector. See Appendix 3 for additional background on the real estate sector more generally.



**Physical climate risks.** For the Nordic building sector, the most severe physical impacts will likely be increased flooding, snow loads and urban overflow, as well as increased storms and extreme weather. Developing projects with climate resilience in mind is critical for this sector. The real estate sector is also exposed to climate risks through links to the construction industry and the utilities sector.

**Transition risks.** K2A is exposed to transition risks from stricter climate policies e.g., mandatory efficiency upgrades. The company is also exposed to liability risks due to e.g., legal challenges if preventable damages from climate change increases. In addition, the real estate sector is exposed to changing consumer preference for more climate smart and energy efficient buildings.

**Environmental risks.** The construction sector is at risk of polluting the local environment during the erection of the properties, e.g. from poor waste handling. There are also risks related to impacts on local biodiversity/habitats as well as the use of un-sustainably sourced material like tropical wood.

**Social risks.** The social risks related to the real estate and construction sector include risks for human rights violations primarily in the supply chain in the sourcing of materials and services. Risks in relation to workers' rights are particularly linked to health and safety for the issuers'/the companies' own employees as well as those of subcontractors.

### Sustainability Management

K2A has adopted a sustainability policy as well as a business plan which stipulates that all K2A's new production from 2018 should be environmentally classified in accordance with the Nordic Swan Ecolabel<sup>9</sup> or equivalent environmental certification. K2A's assessment today is that certification in accordance with the Nordic Swan Ecolabel corresponds to a relatively high level of sustainability and mitigates against possible stricter legislation. K2A's level of ambition is to be at the forefront of sustainability and the company follows technology development and legislation in order to integrate new energy efficient solutions and adaptations.

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<sup>9</sup> To be able to certify a building according to Nordic Swan Ecolabel, the buildings must be included in a life cycle analysis. Building materials and chemical products are inspected. The use of renewable energy and green innovations is encouraged. In Sweden the Nordic Swan Ecolabel require an energy efficiency of 85% of BBR24 or 90% of BBR25/BBR26/BBR29 for apartment buildings and buildings for pre-schools and schools and 80% of BBR24 or 85% of BBR25/BBR26/BBR29 for small houses.



K2A sustainability policy further stipulates that K2A will use green electricity and, if available, green district heating for heating of management objects. In new production, K2A invests in energy-efficient solutions such as solar cells and geothermal heat, which are highly contributing measures to reduce the consumption of mainly heating and electricity.

### *Governance structure*

K2A's CEO is ultimately responsible for sustainability work as well as risk management and measures related to sustainability, including climate-related financial risks and opportunities.

K2A's Board of Directors annually establishes the overall sustainability policy, strategy and sustainability goals, as well as risk analysis, including climate-related risks and opportunities. In addition, K2A's board has set up a special Sustainability Committee.

The Sustainability Committee is responsible for designing and following up K2A's sustainability goals. The work and tasks of the Sustainability Committee are regulated by the committee's rules of procedure, which are adopted by the Board.

The Sustainability Manager assists the sustainability committee and is responsible for implementing sustainability goals in the organization as well as implementing measures and reporting on sustainability work, including climate-related risks and opportunities. The Sustainability Manager reports directly to the CEO.

The management team is responsible for following up the outcome of the sustainability goals, including climate-related goals, risks and opportunities. Sustainability work is reported at monthly meetings and outcomes of sustainability work are reported four times a year.

Business development integrates the business's sustainability goals into routines. For example, a sustainability analysis is carried out at competitions and evaluation of buildable land.

Project development integrates sustainability goals into routines that guide the work in the projects (design and production), for example in Nordic Ecolabelling of new production.

The administration is responsible for action plans on how K2A can reduce CO<sub>2</sub> emissions and drive sustainability work linked to the buildings, such as purchasing, waste management, maintenance and investments in climate adaptation measures. The administration is also responsible for conducting sustainability work related to customer satisfaction, marketing efforts and IR, for example via stakeholder dialogues and ongoing customer surveys

### *Risk assessment*

K2A has carried out its own risk analysis and identified the following as relevant to K2A:

- Physical risks – acute: Fire risk; Extreme weather (heavy snow, rain, storms); Flooding and Heat waves.
- Physical risks – long-term: Temperature changes; Changed precipitation patterns; Air conditions and Sea level rise.
- Transitional risks – regulatory: Requirements for climate reporting; Policies and legal requirements.
- Transitional risks – technological: Investments required to upgrade existing building systems; Investments required to adapt existing property portfolio.
- Transitional risks – Market & reputation: Increased costs for raw materials and energy; Brand, reputation and changed demand.



### Reporting

To illustrate and facilitate the measurement and comparison of a company's sustainability performance, various international initiatives have been taken in sustainability accounting, such as standards, frameworks and tools. K2A reports sustainability data with the following reporting initiatives:

- GRI - Global Reporting Initiative. Global standard for sustainability reporting. Included in K2A's annual report.
- TCFD - Task Force on Climate-related Financial Disclosures. Framework for identifying a company's climate-related financial risks and opportunities.
- GHG Protocol (Green House Gas Protocol). The climate impact of the business through direct and indirect emissions of greenhouse gases, divided into three different categories (so-called Scope 1 - 3).
- EU taxonomy. A tool for classifying economic activities based on how well they are in line with the Paris Agreement.

K2A's auditor, KPMG, has provided assurance of the sustainability report. KPMG has reviewed the report according to the standard ISAE 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*.

### Key issues

#### GHG Emissions

K2A reported Scope 1, 2 and partial 3 greenhouse gas emissions according to the Greenhouse Gas (GHG) protocol for the first time for the year 2020.

**Table 2: Summary of K2A's GHG-emissions and main emission reduction targets.**

Emissions	Total (tons CO <sub>2</sub> eq <sup>10</sup> )	Scope 1	Scope 2	Scope 3 <sup>11</sup>
Main targets				
2020	610.94	11.65	496.87	102.42
2019	525.43 <sup>12</sup>			-
Change 2019-2020	85.51			
Main sources	Heat	Company cars	Heat	Fuel and energy related activities.

#### Energy

Electricity and heat are the main components of energy use. K2A always choose green electricity and as much green as possible district heating. For example, K2A has installed solar panels on several residential properties in

<sup>10</sup> CO<sub>2</sub>e, carbon dioxide equivalent is a measurement term for greenhouse gas accounting.

<sup>11</sup> Scope 3 emissions covers only business travels and upstream production of electricity and heat.

<sup>12</sup> Scope 1 +2 only.



Lund, Västerås and Haninge. The excess energy produced by the solar panels are used in charging the local carpool (Bobil). The carpools are available to tenants in Umeå, Örebro, Haninge, Västerås, Gävle and Lund.

In 2020 the energy use was as shown in the table below:

Table 3 K2A's energy mix

Energy type	Amount	Percent of total	Comments
District heating	8,430 MWh		The energy sources for K2A's buildings have the following distribution: <ul style="list-style-type: none"><li>• Renewables 88,5%</li><li>• Biomass 1,5%</li><li>• Nuclear 3,0% *</li><li>• Fossil 2,3%</li><li>• Hydropower 2,0%</li><li>• Electricity 0,0% **</li><li>• Hot water 0,2% **</li></ul> * The main use of nuclear power is for electricity, which is a part of the energy mix for three properties. ** Residual electricity and hot water are energy sources used by the district power plants, e.g. hot water as a by-product from industry is used to pre-heat the district heating water.
Electricity	3,768 MWh		
Other fuels***	25 MWh	0%	20 MWh is fossil fuel

\*\*\*"Other fuels" refers to fuels used in company cars, leased cars and flights.

### Building Certifications

Since 2018, K2A has certified all newly built projects under their own auspices according to the Nordic Swan Ecolabel. At the beginning of 2021, K2A took a climate risk inventory and environmentally certified the majority of their buildings according to Miljöbyggnad iDrift and the rest will be inventoried and certified during the year. The work constitutes the largest individual effort in environmental certification and climate risk inventory ever carried out in Sweden. This means that all of K2A's new buildings and existing buildings older than three years<sup>13</sup> will be environmentally certified and climate risk inventoried.

### Materials and waste

K2A strives to be resource efficient throughout the value chain, which includes responsible use of water, materials and waste management. The Nordic Swan Ecolabel of the company's newly produced homes is an important tool for achieving this<sup>14</sup>. For registering products and keeping a record, K2A uses the Nordic Swan Ecolabel database, "Husproduktportalen", to list all the materials and products for all of new construction projects. By choosing high-quality climate-efficient materials, the service life of homes and installations increases. Wood as a frame material and smart fastening methods make the materials easier to replace, maintain and reuse. The ambition is to be able to assemble the volume elements in a way that in the future makes it easy to disassemble them, and also enable recycling of constituent building materials. Recycling alternatives are part of the process and in 2021 the work of inventorying the production methods will continue in order to increase the degree of circularity. From the

<sup>13</sup> The Miljöbyggnad iDrift certification is only applicable to buildings older than 3 years  
<https://www.sgbc.se/app/uploads/2020/09/Milj%C3%B6byggnad-iDrift-1.0.pdf>

<sup>14</sup> Nordic Swan Ecolabel includes criteria for hazardous substances in chemicals and construction products, impregnated wood, certified wood, preservatives in chemical products, nano particles, recycled materials, copper.



beginning, building with high quality building materials and a high standard of housing contributes to customers taking better care of their homes, the need for repairs is reduced, which in the long run leads to lower maintenance costs. K2A has as of now no information on the tenants recycling rates.

### *Climate resilience*

K2A has completed climate risk inventories of all properties. The following number of buildings are judged to need climate adaptation measures based on the exposure to various climate-related events:

Table 4 K2A portfolio's climate risks

Event	Number of buildings
Rainfall	33
Heat waves	25
Forest fires	13
Extreme snowfall	4

Table 5 K2A portfolio's financial consequences of climate risks

Adaptation measures	Estimated cost, SEK million
Diversion, protection and disposal of water	16.5
Sun protection and shading plants	25
Construction of grass surfaces/fire corridors	2.6
Reinforcement of roof constructions	3

### *Transportation solutions*

In several of K2A's places; Lund, Stockholm, Västerås, Gävle, Umeå and Örebro, car pools with exclusive electric cars are offered for tenants. The carpool was launched in 2018. Environmental benefits arise when several households can share a smaller number of cars. Another advantage is that the need to build parking spaces is reduced, which creates space for building more homes that generate increased rental income. With the aim of encouraging residents at K2A to sustainable mobility such as walking, cycling and public transport, K2A has introduced travel plans for the digital bulletin boards, with timetables for the nearest public transport point, such as bus or train.

In all newly produced homes, the residents have access to bicycle spaces, both indoors and outdoors, and in some projects, there are also bicycle workshops for easier maintenance. As part of K2A's sustainability strategy to increase the conditions for healthy and environmentally friendly lifestyles, the company will in 2021 launch its own electric bicycle pool, BoBike.



### Key social issues

K2A informs us that social risks are managed through the following elements:

- The Code of Conduct contains guidelines for ensuring responsible behaviour, high business ethics and respect for human rights. It only exists in Swedish and is not publicly available.
- The Gender Equality Policy contains guidelines for zero tolerance for discrimination or abusive discrimination.
- Requiring suppliers to comply with K2A's Code of Conduct and expect these to require compliance from their suppliers
- Revisions of supplier agreements on an annual basis and in connection with the signing or renewal of contracts.
- Whistleblowing policy and routine that used to detect irregularities or violations of the Code of Conduct and managed by a third-party<sup>15</sup>
- The sustainability report of K2A is independently reviewed by KPMG. Data is not verified.

CICERO Green considers that K2A mainly fulfils the minimum social safeguards of the EU Taxonomy. As suppliers' and sub-contractors' human rights and workers' rights risks can be significant in the sector in which K2A operates, we recommend that these are thoroughly mapped in K2A's forthcoming risk assessments.

Table 4 CICERO Green assessment of K2A's management of key environmental issues

Key issue	CICERO Green comments
GHG emissions	✓ K2A reported for the first time GHG emissions according to the GHG protocol in 2020. Scope 3 emissions do not cover emissions from the production of construction materials, the likely largest source of Scope 3 emissions.
Energy	✓ The energy intensity of the portfolio was 109 kWh/m <sup>2</sup> in 2020 (Atemp). This is good, but generally higher than current regulations. The extensive use of local wood in main structures of many of the buildings further lowers the climate footprint substantially.
Building certifications	✓ Nordic Swan Ecolabel is a good environmental certification scheme. Miljöbyggnad iDrift is considerably weaker, with no explicit regulation of e.g., energy intensities.
Materials and waste	✓ All construction materials and chemicals meet the Nordic Swan Ecolabel standards for materials. This is also followed up by site visits where representatives from the Nordic Swan Ecolabel makes sample checks for materials and chemicals used on site. ✓ All construction waste is sorted according to the requirement for waste management in the Nordic Swan Ecolabel. K2A has as yet no statistics on recycling rates.
Climate Resilience	✓ K2A has inventories its total portfolio against main climate risks and are reporting this and the financial consequences according to TCFD. We are impressed by this achievement.

<sup>15</sup> The whistle blower function is provided by the website: <https://k2a.se/om-k2a/#visselblasning>



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Transport solutions ✓ K2A offers innovative and good transport solutions to their tenants. K2A has informed us that they see easy connection to public transport as a key consideration in developing new projects.

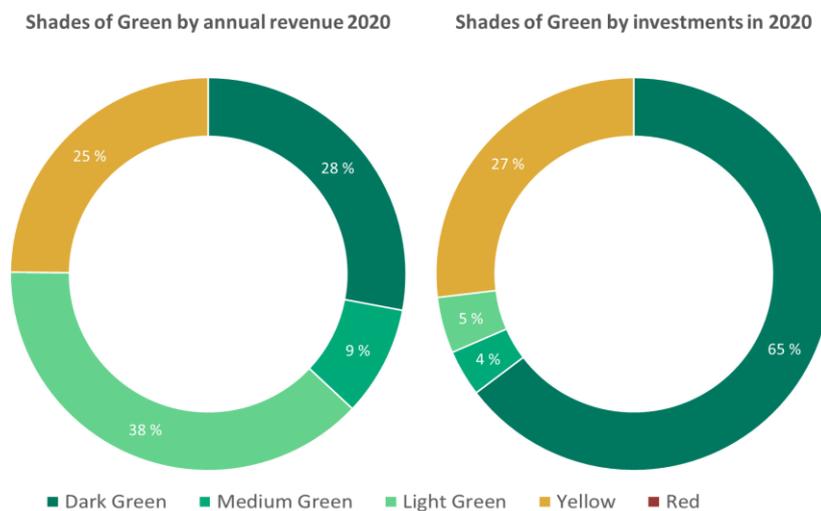
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## 2 Assessment of K2A's revenues and investments

### Shading of K2A's revenue, operating expenses and investments<sup>16</sup>

Figure 3 shows our shading of K2A's revenue and investments in 2020. The figures are aligned with K2A's financial reporting; however, some small discrepancies may occur as our analysis requires allocating revenue, operating expenses, and investments to specific projects.



**Figure 3 K2A's 2020 revenue and investments by Shade of Green.**

The Shade of Green assigned to a property reflects its overall climate risk and environmental impact. We have assessed and allocated a shade of green to each property in the portfolio. Our analysis of the properties is positively influenced by our assessment of K2A's Governance Score of Excellent and the company's management of some key environmental concerns, specifically K2A's improvement of average energy efficiency from 2019 – 2020, the company's work to understand and mitigate the climate risk of its portfolio and the focus on low carbon material and transportation solutions.

Given K2A's governance and management of key environmental issues, we have assigned a shade to each property based on the environmental certification scheme, energy label of buildings, and materials. K2A has a particular focus on using locally sourced wood as a key building material. The company is also working on more circular building solutions, with the ambition is to be able to assemble the volume elements in a way that in the future makes it easy to disassemble them and enable recycling of materials. Material use is an important contributor to the lifecycle emissions of buildings, particularly in regions with a high share of renewables in the grid. A large number of LCA studies show that wood-frame building results in lower primary energy and GHG emission compared to non-wood alternatives including concrete and steel. Wooden buildings and buildings that have other environmental benefits, as demonstrated by a high level of energy efficiency or green building certification, are assessed as green.

<sup>16</sup> For the purpose of this assessment, revenue and turnover are used interchangeably, as are operating costs and OPEX, investments and CAPEX



**Dark Green** is assigned to wooden buildings with Nordic Swan Ecolabel, Passive house, or Miljöbyggnad Silver (new construction) certification, or highly energy efficient wooden building with an EPC label of A or B. Many of these buildings also have geothermal heating as an energy source which contribute to the Dark Green shading.

**Medium Green** is assigned to properties with either a Passive House certification, highly energy efficient houses with an EPC label of B or wooden properties with an energy use corresponding to regulations (EPC C) and an ongoing or existing Miljöbyggnad in-use Silver certification. The in-use certification ensures a follow-up of energy use and other environmental aspects of building management.

**Light Green** is assigned to wooden properties<sup>17</sup>. Many of these properties have an Miljöbyggnad in-use Silver certification, contributing to the Light Green shading. Some Light Green properties have high energy intensity, however, the environmental benefits associated with the material choice qualify the properties for the shade<sup>18</sup>.

For properties not fulfilling any of the above criteria, or where data are missing, a shade of **Yellow** is allocated based on energy use and year of construction or last major renovation. In all cases, measured (actual) energy use is preferred, but if lacking, design values will be used. We note that one building in K2A's portfolio has heating based on natural gas which we shaded Yellow despite its high energy efficiency performance. At present there are no explicit plans to switch to a cleaner energy source.

With these provisions, we find that for 2020 28% of rental revenue came from assets considered Dark Green, 9% from assets shaded Medium Green, 38% from assets shaded Light Green, and 25% from non-green assets shaded Yellow. Thus, 75% of the rental revenue came from assets with some shade of green.

Investments in 2020 were shaded 65% Dark Green, 4% Medium Green, 5% Light Green and 27% Yellow shade. Thus, 73% of investments receive a green shading. The shading is partially based on expected future certification levels, which may be uncertain. According to K2A, all new building projects will be environmentally certified.

When it comes to operating costs in 2020, these were distributed somewhat similar to the revenues with 31% shaded Dark Green, 9% Medium Green, 30% Light Green and 30% Yellow. Thus, 70% of operating costs were associated with assets with some shade of green.

Investors should note that our assessment is based on data reported or estimated by the company and has not always been verified by a third party. We analyse revenue, operating costs and investments, however there is typically not an explicit link between sustainability and financial data<sup>19</sup>. Our shading often requires allocating line items in financial statements to projects or products, for this we rely on the company's internal allocation methods. In addition, there are numerous ways to estimate, measure, verify and report e.g., data on emissions, which may make direct comparisons between companies or regulatory criteria difficult and somewhat uncertain.

### Nasdaq Green Designation

CICERO Green confirms that K2A meets the requirements for Nasdaq Green Equity Designation set out in the Nasdaq Green Equity Principles.

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<sup>17</sup> One wooden building has been disqualified from the green shading given an overly high energy use.

<sup>18</sup> One mixed wood and termoblock building with energy label C and biogas as heating source also have received a Light Green shading.

<sup>19</sup> Most accounting systems do typically not provide a break-down of revenue and investments by environmental impact, and the analysis may therefore include imprecisions and may not be directly comparable with figures in the annual reporting



In 2020, 75% of K2A's revenue or turn-over came from assets with some Shade of Green, exceeding the 50% threshold for green activities for company turnover. The sum of OPEX and CAPEX allocated a Shade of Green is 73%, exceeding the 50% threshold for investments, defined as the sum of CAPEX and OPEX. In 2020, K2A had no turnover assessed shaded Red, meeting the threshold of less than 5% of the company's turnover being derived from fossil fuel activities.

In addition, this report provides transparency on alignment of the company's activities with the EU Taxonomy and transparency on the company's environmental targets and KPIs is provided.

### EU Taxonomy

The mitigation criteria in the EU taxonomy includes specific thresholds and do no significant harm (DNSH) criteria for activities relevant for the company<sup>20</sup>. The following economic activities under Real estate are judged to be relevant for K2A:

- 7.1 New production
- 7.2 Conversion and renovation
- 7.3 Installation, maintenance and repair of energy efficient equipment
- 7.4 Installation, maintenance and repair of charging stations for electric vehicles in buildings,
- 7.5 Installation, maintenance and repair of instruments and apparatus for measuring, regulating and controlling the energy performance of buildings
- 7.6 Installation, maintenance and repair of renewable energy technologies
- 7.7 Acquisitions or managed properties.

Comments on alignment are given below, and detailed thresholds, NACE-codes and likely alignment with DNSH criteria are given in Appendix 2. Input on our methodology is given in part 3.

CICERO Green assesses that K2A's activities in new constructions are aligned with the technical criteria in the EU Taxonomy. The same goes for activities 7.3, 7.4, 7.5 and 7.6 in the list above. These activities represented through investments 44% of CAPEX and 42% of total OPEX and CAPEX in 2020.

CICERO Green is not able to assess alignment of K2A's activities related to renovation of building to the technical mitigation criteria due to lack of data on the reduction in primary energy demand resulting from the renovations.

CICERO Green is at this point unable to determine alignment of K2A's activities related to Acquisition and ownership of buildings to the technical mitigation threshold. The key requirement is that properties are within the top 15 % of energy performance for national or regional building stock. CICERO Green recognizes that K2A has worked on improving energy performance over time. However, the criteria for top 15% has not yet been determined for Swedish properties and there is not enough publicly available data to make this assessment to date.

K2A appears to be likely aligned with most DNSH criteria. A potential DNSH gap is related to Transition to a circular economy, where the recycling rates for non-hazardous construction and demolition materials cannot be guaranteed to be above 70%, although the Nordic Swan Ecolabel give points for recycling rates above 50%.

K2A has presented their policies and processes about human rights and workers' rights. Several important measures are in place and will in the future be based on a more risk-based approach to ensure all salient social

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<sup>20</sup> [taxonomy-regulation-delegated-act-2021-2800-annex-1\\_en.pdf \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2021/2800/annex_1_en.pdf)



risks are identified and handled. Given that K2A mainly operates in and sources from a strongly regulated region, the measures in place appears to be properly calibrated to meet the risks likely to be the most material ones.



### 3 Terms and methodology

The aim of this analysis is to be a practical tool for investors, lenders and public authorities for understanding climate risk. CICERO Green encourages the client to make this assessment publicly available. If any part of the assessment is quoted, the full report must be made available. Our assessment, including on governance, is relevant for the reporting year covered by the analysis. This assessment is based on a review of documentation of the client’s policies and processes, as well as information provided to us by the client during meetings, teleconferences and email correspondence. In our review we have relied on the correctness and completeness of the information made available to us by the company.

#### Shading corporate revenue and investments

Our view is that the green transformation must be financially sustainable to be lasting at the corporate level. We have therefore shaded the company’s current revenue generating activities, as well as investments and operating expenses.

The approach is an adaptation of the CICERO Shades of Green methodology for the green bond market. The Shade of Green allocated to a green bond framework reflects how aligned the likely implementation of the framework is to a low carbon and climate resilient future, and we have rated investments and revenue streams in this assessment similarly. We allocate a shade of green to the revenue stream and investments according to how these streams reflect alignment of the underlying activities to a low carbon and climate resilient future and taking into account governance issues.

SHADES OF GREEN	EXAMPLES
 <b>Dark green</b> is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future.	 Solar energy projects
 <b>Medium green</b> is allocated to projects and solutions that represent steps towards the long-term vision but are not quite there yet.	 Green buildings with a high level of certification and energy efficiency
 <b>Light green</b> is allocated to transition activities. These projects and solutions could have lower emissions, but do not by themselves represent or contribute to the long-term vision.	 Substantially more efficient manufacturing of fossil fuel intensive materials
 <b>Yellow</b> is allocated to projects and activities that do not contribute to transition. These activities could have some emissions and be exposed to climate risks. This category also includes activities with too little information to assess.	 Efficiency in fossil fuel infrastructure
 <b>Red</b> is allocated to projects and activities that have no role to play in a low-carbon and climate resilient future. These are heaviest emitting assets, with the most potential for lock-in of investments and risk of stranded assets.	 New infrastructure for coal

In addition to shading from dark green to red, CICERO Shades of Green also includes a governance score to show the robustness of the environmental governance structure. When assessing the governance of the company, CICERO Green looks at five elements: 1) strategy, policies and governance structure; 2) lifecycle considerations including supply chain policies and environmental considerations towards customers; 3) the integration of climate considerations into their business and the handling of resilience issues; 4) the awareness of social risks and the management of these; and 5) reporting. Based on these aspects, an overall grading is given on governance strength



falling into one of three classes: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

In March 2020, a technical expert group (TEG) proposed an EU taxonomy for sustainable finance that included a number of principles including “do-no-significant-harm (DNSH)-criteria” and safety thresholds for various types of activities<sup>21</sup>. In April 2021, EU published its delegated act to outline proposed criteria for climate mitigation and adaptation, which it was tasked to develop after the EU Taxonomy Regulation entered into law in July 2020. The mitigation criteria in the EU taxonomy includes specific thresholds for real estate sector activities relevant for the company<sup>22</sup>.

Do-No-Significant-Harm criteria include measures such as ensuring resistance and resilience to extreme weather events, preventing excessive water consumption from inefficient water appliances, ensuring recycling and reuse of construction and demolition waste and limiting pollution and chemical contamination of the local environment, as well as restriction on the type of land used for construction (no arable or forested land).

CICERO Green has assessed potential alignment against the mitigation thresholds and the DNSH criteria in the delegated acts published in April 2021.

In order to qualify as a sustainable activity under the EU regulation 2020/852 certain minimum safeguards must be complied with. The safeguards entail alignment with the OECD Guidelines for Multinational Enterprises and UN Guiding Principles on Business and Human Rights, including the International Labour Organisation’s (‘ILO’) declaration on Fundamental Rights and Principles at Work, the eight ILO core conventions and the International Bill of Human Rights. CICERO Green has completed a light touch assessment of the above social safeguards with a focus on human rights and labor rights risks<sup>23</sup>. We take the sectoral, regional and judicial context into account and focus on the risks likely to be the most material social risk.

Our assessment of alignment against the EU Taxonomy is based on a desk review of the listed source documents against the Taxonomy Delegate Act and following our own shading methodology.

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<sup>21</sup> Taxonomy: Final report of the Technical Expert Group on Sustainable Finance, March 2020. [TEG final report on the EU taxonomy \(europa.eu\)](#)

<sup>22</sup> [taxonomy-regulation-delegated-act-2021-2800-annex-1\\_en.pdf \(europa.eu\)](#)

<sup>23</sup> CICERO Green is in the process of further developing its assessment method to ensure that it encompasses the object and purpose of the minimum safeguards.



## Appendix 1: Referenced documents list

Document Number	Document Name	Description
1	K2A Årsredovisning 2020	K2A's 2020 Annual report
2	Rapport K2A Klimatriskinventering 2021-03-19	Climate risk assessment of K2A's portfolio
3	K2A Uppförandekod 20190122	Code of conduct.
4	K2A Arbetsmiljöhandbok o Policy 20171123	Work environment policy
5	K2A Visselblåsningpolicy 190122	Whistle-blower policy
6	Slutrapport_HR 2020_K2A_FINAL	KPMG verification of sustainability report 2020



## Appendix 2: EU Taxonomy criteria and alignment

Complete details of the EU taxonomy criteria are given in [taxonomy-regulation-delegated-act-2021-2800-annex-1 en.pdf \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2021/2800/annex_1_en.pdf)

### Construction of new buildings (7.1)

Taxonomy activity	Construction of new buildings (NACE Code F41.1, F41.2)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> </ul> <p><b>Constructions of new building, eligible if:</b></p> <ul style="list-style-type: none"> <li>The Primary Energy Demand is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national regulation. The energy performance is certified using an as built Energy Performance Certificate (EPC).</li> <li>For buildings larger than 5000 m<sup>2</sup>, upon completion, the building resulting from the construction undergoes testing for air-tightness and thermal integrity, and any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients. As an alternative; where robust and traceable quality control processes are in place during the construction process this is acceptable as an alternative to thermal integrity testing.</li> <li>For buildings larger than 5000 m<sup>2</sup>, the life cycle Global Warming Potential of the building resulting from the construction has been calculated for each stage in the life cycle and is disclosed to investors and clients on demand.</li> </ul>	<p>K2A informs us that the Swedish BBR is aligned with the NZEB-directive. The Nordic Swan Ecolabel requires that all new constructions are being built with an energy demand at least 10% lower, we use a government subsidy scheme for the majority of the new buildings which requires that energy use should be at least 44% lower than BBR/NZEB.</p> <p>K2A has two ongoing projects (Arenastaden, Sala Backe) that exceeds 5000 m<sup>2</sup> in total, but each of them consists of two or more buildings, each below 5000 m<sup>2</sup> the criteria referring to size is not relevant.</p> <p>Six of the future projects that have not started yet are larger than 5000 m<sup>2</sup>. A testing for air-tightness as well as a Life Cycle Assessment will be done for these when they start.</p>	<p><b>Likely aligned</b></p>



	<b>EU Taxonomy DNSH-criteria</b>	<b>Comments on alignment</b>	<b>Alignment</b>
Climate change adaptation	<p>The physical climate risks that are material to the activity have been identified (chronic and acute, related to temperature, wind, water, and soil) by performing a robust climate risk and vulnerability assessment with the following steps<sup>24</sup>:</p> <ul style="list-style-type: none"> <li>(a) screening of the activity to identify which physical climate risks from the list in Section II of this Appendix may affect the performance of the economic activity during its expected lifetime;</li> <li>(b) where the activity is assessed to be exposed to physical climate risks, a climate risk and vulnerability assessment to assess the materiality of the physical climate risks on the economic activity;</li> <li>(c) an assessment of adaptation solutions that can reduce the identified physical climate risk.</li> </ul> <p>The climate projections and assessment of impacts are based on best practice and available guidance and take into account the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports, scientific peer-reviewed publications, and open source or paying models.</p> <p>For existing activities and new activities using existing physical assets, the economic operator implements physical and non-physical solutions ('adaptation solutions'), over a period of time of up to five years, that reduce the most important identified physical climate risks that are material to that activity. An adaptation plan for the implementation of those solutions is drawn up accordingly.</p> <p>For new activities and existing activities using newly-built physical assets, the economic operator integrates the adaptation solutions that reduce the most important identified physical climate risks that are material to that activity at the time of design and construction and has implemented them before the start of operations.</p> <p>The adaptation solutions implemented do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of cultural heritage, of assets and of other economic activities; are consistent with local, sectoral, regional or national adaptation strategies and</p>	<p>According to the company, K2A has a number of properties where climate risk inventories have shown that measures are required. At present, however, about 50% of the economic activities for Objective 2 are estimated to be in line with the EU taxonomy.</p> <p>A vulnerability assessment has been made for those buildings that are at medium or high risk. A consultant has performed site visits and made recommendations of complementary measures for those buildings at risk.</p> <p>According to the company, K2A will implement measures in accordance with the climate risk inventories in maintenance plans and implement measures on an ongoing basis in the coming years, as well as carry out climate risk inventories of newly produced and acquired properties. The company estimates that the majority of the economic activities will be in line with the EU-taxonomy requirements to climate change adaptation, within the next 3-4 years.</p>	<b>Likely aligned</b>

<sup>24</sup> The Taxonomy is referring to Appendix A in the Taxonomy Annex 1.



	plans; and consider the use of nature-based solutions or rely on blue or green infrastructure to the extent possible.		
Sustainable use and protection of water and marine resources	<ul style="list-style-type: none"> <li>Where installed, except for installations in residential building units, the specified water use for the following water appliances are attested by product datasheets, a building certification or an existing product label<sup>25</sup> in the Union, in accordance with the technical specifications:               <ol style="list-style-type: none"> <li>wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min;</li> <li>showers have a maximum water flow of 8 litres/min;</li> <li>WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres;</li> <li>urinals use a maximum of 2 litres/bowl/hour. Flushing urinals have a maximum full flush volume of 1 litre.</li> </ol> </li> </ul> <p>To avoid impact from the construction site, the activity complies with the criteria in the EU Water Framework Directive<sup>26</sup>.</p> <p>Where an Environmental Impact Assessment is carried out in accordance with Directive 2011/92/EU<sup>27</sup> and includes an assessment of the impact on water in accordance with the Water Framework Directive, no additional assessment of impact on water is required, provided the risks identified have been addressed.</p>	<p>K2A measures water use in non-residential buildings on a monthly basis.</p> <p>For new construction, K2A only use efficient water appliances in line the requirements in the taxonomy, as it is a requirement from the Nordic Swan Ecolabel.</p> <p>General planning is the responsibility of the municipality and EIAs will be carried out on municipality level where required by national law. This includes a plan for impacts on water sources and will secure compliance with the EU Water Framework Directive.</p>	<b>Likely aligned</b>
Transition to a circular economy (circular economy)	<ul style="list-style-type: none"> <li>At least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material<sup>28</sup>) generated on the construction site is prepared for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials.</li> <li>Operators limit waste generation in processes related to construction and demolition in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances and facilitate reuse and high-quality</li> </ul>	<p>K2A require sorting of all construction waste. Materials should be recycled or reused according to the requirement for waste recycling in the Nordic Swan Ecolabel.</p> <p>In the case of demolition, K2A examines materials that can be reused or recycled. In Sweden, handling of hazardous substances is regulated by national legislation and requirements from authorities.</p>	<b>Partially aligned to criteria for waste management and design criteria</b>

<sup>25</sup> The Taxonomy is referring to Appendix E in the Taxonomy Annex 1.

<sup>26</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

<sup>27</sup> DIRECTIVE 2011/92/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the assessment of the effects of certain public and private projects on the environment.

<sup>28</sup> Refer to the European List of Waste established by Commission Decision 2000/532/EC



	<p>recycling by selective removal of materials, using available sorting systems for construction and demolition waste.</p> <ul style="list-style-type: none"> <li>• Building designs and construction techniques support circularity and in particular demonstrate how they are designed to be more resource efficient (with reference to ISO 20887<sup>29</sup>), adaptable, flexible and dismantlable to enable reuse and recycling.</li> </ul>	<p>Building modules from K2A are assembled in a way that allow for later disassembling. However, according to the company, K2A has not currently applied the ISO 20887 standard or other standards for assessing the dismantling or adaptability of buildings. The standard was only launched in 2020 and K2A will return to this on a later date and see to what extent it is deemed relevant to an economic activity. This is the case also for Renovation of buildings.</p>	
Pollution prevention and control	<ul style="list-style-type: none"> <li>• Building components and materials used in the construction comply with the criteria set out in Appendix C to the Taxonomy Annex 1.</li> <li>• For building components and materials used in the construction that may come into contact with occupiers, formaldehyde emissions are within relevant limits<sup>30</sup>.</li> <li>• Where the new construction is located on a potentially contaminated site (brownfield site), the site has been subject to an investigation for potential contaminants<sup>31</sup>.</li> <li>• Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.</li> </ul>	<p>In the case of renovation, a screening of asbestos has to be made by law. K2A has made investigations for potential hazardous substances for all properties older than 15 years. They have found some asbestos that is capsuled in one building, and for one renovation project the asbestos has been removed.</p> <p>If the developer does not know the state of a building site in terms of hazardous substances, they have to (by law) make an investigation of the site, and if contaminated, remove the contaminated soil.</p>	<b>Likely aligned</b>
Protection and restoration of biodiversity and ecosystems	<ul style="list-style-type: none"> <li>• An Environmental Impact Assessment (EIA) or screening should be completed in accordance with national provisions<sup>32</sup>.</li> <li>• Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented.</li> <li>• For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented.</li> <li>• The new construction should not be built on one of the following:             <ol style="list-style-type: none"> <li>a) arable land and crop land;</li> </ol> </li> </ul>	<p>General planning is the responsibility of the municipality and EIAs will be carried out on municipality level. Land that is covered by area protection according to the Planning and Building Act is Natura 2000, nature reserves and animal and plant protection areas, and construction is not permitted. This is stated in the general and detailed plan for each municipality.</p> <p>Municipalities are not allowed to offer sites for exploitation without the developer doing an EIA. Wetlands are covered by the EIA, and considered to</p>	<b>Likely aligned</b>

<sup>29</sup> ISO 20887:2020, Sustainability in buildings and civil engineering works - Design for disassembly and adaptability - Principles, requirements and guidance (version of [adoption date]: <https://www.iso.org/standard/69370.html>).

<sup>30</sup> Emit less than 0,06 mg of formaldehyde per m<sup>3</sup> of material or component and less than 0,001 mg of categories 1A and 1B carcinogenic volatile organic compounds per m<sup>3</sup> of material or component, upon testing in accordance with CEN/TS 16516522 and ISO 16000-3 523 or other comparable standardised test conditions and determination method.

<sup>31</sup> Standard ISO 18400 can be used.

<sup>32</sup> The Taxonomy is referring to Appendix D in the Taxonomy Annex 1.



	<p>b) greenfield land of recognised high biodiversity value and land that serves as habitat of endangered species (flora and fauna) listed on the European Red List or the IUCN Red List.</p> <p>c) land matching the definition of forest as set out in national law used in the national greenhouse gas inventory, or where not available, is in accordance with the FAO definition of forest<sup>33</sup>.</p>	<p>be highly valuable so they are generally not to be exploited in Sweden.</p> <p>K2A states that none of their properties is in areas with high biodiversity, or on arable or forested land.</p>	
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<sup>33</sup> Land spanning more than 0,5 hectares with trees higher than five meters and a canopy cover of more than 10 %, or trees able to reach those thresholds in situ. It does not include land that is predominantly under agricultural or urban land use, FAO Global Resources Assessment 2020. Terms and definitions.(version of [adoption date]: <http://www.fao.org/3/I8661EN/i8661en.pdf>).



## Renovation of existing buildings (7.2)

Taxonomy activity	Renovation of existing buildings (NACE code F41 and F43)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> </ul> <p><b>Renovation of existing buildings, eligible if:</b></p> <ul style="list-style-type: none"> <li>The reduction of primary energy demand (PED) must be at least 30 %.</li> </ul>		<b>Likely not aligned</b>
	EU Taxonomy DNSH-criteria	Comments on alignment	Alignment
Climate change adaptation	<ul style="list-style-type: none"> <li>Please refer to Construction of buildings.</li> </ul>		
Sustainable use and protection of water and marine resources	<ul style="list-style-type: none"> <li>Where installed, except for installations in residential building units, the specified water use for the following water appliances are attested by product datasheets, a building certification or an existing product label<sup>34</sup> in the Union, in accordance with the technical specifications:               <ol style="list-style-type: none"> <li>wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min;</li> <li>showers have a maximum water flow of 8 litres/min;</li> <li>WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres;</li> <li>urinals use a maximum of 2 litres/bowl/hour. Flushing urinals have a maximum full flush volume of 1 litre.</li> </ol> </li> </ul>	<p>K2A monitors water use on a monthly basis for all of their buildings.</p> <p>For new construction, K2A only use efficient water appliances in line the requirements in the taxonomy, as it is a requirement from the Nordic Swan Ecolabel.</p>	<b>Likely aligned</b>
Transition to a circular economy	Please Construction of buildings.		
Pollution prevention and control	<ul style="list-style-type: none"> <li>Building components and materials used in the construction comply with the criteria set out in Appendix C to the Taxonomy Annex 1.</li> <li>For building components and materials used in renovation that may come into contact with occupiers, formaldehyde emissions are within relevant limits<sup>35</sup>.</li> <li>Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.</li> </ul>	In the case of renovation, a screening of asbestos has to be made by law. K2A has made investigations for potential hazardous substances for all properties older than 15 years. They have found some asbestos that is capsuled in one building, and for one renovation project the asbestos has been removed.	<b>Likely aligned</b>
Protection and restoration of biodiversity and ecosystems	N/A		

<sup>34</sup> The Taxonomy is referring to Appendix E in the Taxonomy Annex 1.

<sup>35</sup> Emit less than 0,06 mg of formaldehyde per m<sup>3</sup> of material or component and less than 0,001 mg of categories 1A and 1B carcinogenic volatile organic compounds per m<sup>3</sup> of material or component, upon testing in accordance with CEN/TS 16516522 and ISO 16000-3 523 or other comparable standardised test conditions and determination method.



### Installation, maintenance and repair of energy efficiency equipment (7.3)

Taxonomy activity	Installation, maintenance and repair of energy efficiency equipment (NACE codes F42, F43, M71, C16, C17, C22, C23, C25, C27, C28, S95.21, S95.22, C33.12)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>• Substantial contribution to climate change mitigation</li> </ul> <p>The activity consists in one of the following individual measures provided that they comply with minimum requirements set for individual components and systems in the applicable national measures implementing Directive 2010/31/EU and, where applicable, are rated in the highest two populated classes of energy efficiency in accordance with Regulation (EU) 2017/1369 and delegated acts adopted under that Regulation:</p> <ul style="list-style-type: none"> <li>(a) addition of insulation to existing envelope components, such as external walls (including green walls), roofs (including green roofs), lofts, basements and ground floors (including measures to ensure air-tightness, measures to reduce the effects of thermal bridges and scaffolding) and products for the application of the insulation to the building envelope (including mechanical fixings and adhesive);</li> <li>(b) replacement of existing windows with new energy efficient windows;</li> <li>(c) replacement of existing external doors with new energy efficient doors;</li> <li>(d) installation and replacement of energy efficient light sources;</li> <li>(e) installation, replacement, maintenance and repair of heating, ventilation and air-conditioning (HVAC) and water heating systems, including equipment related to district heating services, with highly efficient technologies;</li> <li>(f) installation of low water and energy using kitchen and sanitary water fittings which comply with technical specifications set out in Appendix E to this Annex and, in case of shower solutions, mixer showers, shower outlets and taps, have a max water flow of 6 L/min or less attested by an existing label in the Union market.</li> </ul>	<p>K2S informs us that only criteria (f) is relevant to them, and then only to a very small extent for new water appliances in newly built kitchen (about 20-40 water appliances). The Swedish building standard has higher requirements than the requirements in Appendix E.</p>	<p><b>Likely aligned</b></p>
	EU Taxonomy DNSH-criteria	Comments on alignment	Alignment
Climate change adaptation	<ul style="list-style-type: none"> <li>• Please refer to Construction of buildings.</li> </ul>		<p><b>Likely aligned</b></p>
Sustainable use and protection of water and marine resources	<p>N/A</p>		



Transition to a circular economy (circular economy)	N/A		
Pollution prevention and control	<ul style="list-style-type: none"> <li>• Building components and materials comply with the criteria set out in Appendix C to this Annex.</li> <li>• In case of addition of thermal insulation to an existing building envelope, a building survey is carried out in accordance with national law by a competent specialist with training in asbestos surveying. Any stripping of lagging that contains or is likely to contain asbestos, breaking or mechanical drilling or screwing or removal of insulation board, tiles and other asbestos containing materials is carried out by appropriately trained personnel, with health monitoring before, during and after the works, in accordance with national law.</li> </ul>	<p>Building components follow the requirements for construction materials and chemicals for the Nordic Swan Ecolabel, which have higher requirements than the EU-taxonomy.</p> <p>K2A has not added thermal insulation in any of their buildings.</p>	<b>Likely aligned</b>
Protection and restoration of biodiversity and ecosystems	N/A		



### Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings) (7.4)

<b>Taxonomy activity</b>	Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings) (NACE codes F42, F43, M71, C16, C17, C22, C23, C25, C27 or C28)		
	<b>EU Technical mitigation criteria</b>	<b>Comments on alignment</b>	<b>Alignment</b>
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> </ul> Installation, maintenance or repair of charging stations for electric vehicles.	K2A installed 5 charging stations in 2020.	<b>Likely aligned</b>
	<b>EU Taxonomy DNSH-criteria</b>	<b>Comments on alignment</b>	<b>Alignment</b>
Climate change adaptation	<ul style="list-style-type: none"> <li>Please refer to Construction of buildings.</li> </ul>		<b>Likely aligned</b>
Sustainable use and protection of water and marine resources	N/A		
Transition to a circular economy (circular economy)	N/A		
Pollution prevention and control	N/A		
Protection and restoration of biodiversity and ecosystems	N/A		



### Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings (7.5)

Taxonomy activity	Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings) (NACE codes F42, F43, M71, and C16, C17, C22, C23, C25, C27, C28)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> </ul> <p>The activity consists in one of the following individual measures:</p> <p>(a) installation, maintenance and repair of zoned thermostats, smart thermostat systems and sensing equipment, including motion and day light control;</p> <p>(b) installation, maintenance and repair of building automation and control systems, building energy management systems (BMS), lighting control systems and energy management systems (EMS);</p> <p>(c) installation, maintenance and repair of smart meters for gas, heat, cool and electricity;</p> <p>(d) installation, maintenance and repair of façade and roofing elements with a solar shading or solar control function, including those that support the growing of vegetation.</p>	For new constructions, (a), (b) and (c) is relevant but a minimal part of the investments. Therefore, K2A has not separated the capex for this activity, and it is included in the capex for construction of new buildings.	<b>Likely aligned</b>
	EU Taxonomy DNSH-criteria	Comments on alignment	Alignment
Climate change adaptation	<ul style="list-style-type: none"> <li>Please refer to Construction of buildings.</li> </ul>		<b>Likely aligned.</b>
Sustainable use and protection of water and marine resources	N/A		
Transition to a circular economy (circular economy)	N/A		
Pollution prevention and control	N/A		
Protection and restoration of biodiversity and ecosystems	N/A		



### Installation, maintenance and repair of renewable energy technologies (7.6)

Taxonomy activity	Installation, maintenance and repair of renewable energy technologies (NACE codes F42, F43, M71, C16, C17, C22, C23, C25, C27 or C28)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> <li>Installation, maintenance and repair of renewable energy technologies, on-site.</li> </ul> <p>The activity consists in one of the following individual measures, if installed on-site as technical building systems:</p> <p>(a) installation, maintenance and repair of solar photovoltaic systems and the ancillary technical equipment;</p> <p>(b) installation, maintenance and repair of solar hot water panels and the ancillary technical equipment;</p> <p>(c) installation, maintenance, repair and upgrade of heat pumps contributing to the targets for renewable energy in heat and cool in accordance with Directive (EU) 2018/2001 and the ancillary technical equipment;</p> <p>(d) installation, maintenance and repair of wind turbines and the ancillary technical equipment;</p> <p>installation, maintenance and repair of solar transpired collectors and the ancillary technical equipment;</p> <p>(f) installation, maintenance and repair of thermal or electric energy storage units and the ancillary technical equipment;</p> <p>(g) installation, maintenance and repair of high efficiency micro CHP (combined heat and power) plant;</p> <p>(h) installation, maintenance and repair of heat exchanger/recovery systems.</p>	For new constructions, (a), (c) and (f) and (h) is relevant for K2A, but a minimal part of the investments. Therefore, they have not separated the capex for this activity, and it is included in the capex for construction of new buildings.	<b>Likely aligned</b>
	EU Taxonomy DNSH-criteria	Comments on alignment	Alignment
Climate change adaptation	<ul style="list-style-type: none"> <li>Please refer to Construction of buildings.</li> </ul>		<b>Likely aligned.</b>
Sustainable use and protection of water and marine resources	N/A		
Transition to a circular economy (circular economy)	N/A		
Pollution prevention and control	N/A		
Protection and restoration of biodiversity and ecosystems	N/A		



### Acquisition and ownership of buildings (7.7)

Taxonomy activity	Acquisition and ownership of buildings (NACE Code L68)		
	EU Technical mitigation criteria	Comments on alignment	Alignment
Technical screening criteria	<ul style="list-style-type: none"> <li>Substantial contribution to climate change mitigation</li> </ul> <p><b>Acquisition and ownership of buildings, eligible if:</b></p> <ul style="list-style-type: none"> <li>For buildings built before 31 December 2020, the building has at least Energy Performance Certificate (EPC) class A. As an alternative, the building is within the top 15% of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.</li> <li>Where the building is a large non-residential building it is efficiently operated through energy performance monitoring and assessment<sup>36</sup>.</li> </ul> <p>For buildings built after 31 December 2020, Please see mitigation criteria given under Construction of new buildings.</p>	<p>According to the company, for K2A properties, currently 2% of the buildings meet EPC A.</p> <p>According to the company, energy efficiency measures are implemented on an ongoing basis and K2A assesses that the buildings that currently have energy class B can be made more energy efficient to the corresponding energy class A, which corresponds to 12 buildings out of a total of 95 buildings under management.</p> <p>K2A continuously reviews energy and climate requirements for new production. This will mean that the activities related to new production under its own auspices will have a larger share of EU taxonomy green activities.</p>	<b>Likely not aligned</b>
	<b>EU Taxonomy DNSH-criteria</b>	<b>Comments on alignment</b>	<b>Alignment</b>
Climate change adaptation	Please refer to Construction of buildings.	K2A has made a climate risk assessment for all of their buildings, which covers the material/relevant climate risks identified in Appendix A.	<b>Likely aligned</b>
Sustainable use and protection of water and marine resources	N/A		
Transition to a circular economy (circular economy)	N/A		
Pollution prevention and control	N/A		
Protection and restoration of biodiversity and ecosystems	N/A		

<sup>36</sup> This can be demonstrated, for example, through the presence of an Energy Performance Contract or a building automation and control system in accordance with Article 14 (4) and Article 15 (4), of Directive 2010/31/EU.



## Appendix 3: Background

According to the International Energy Agency (IEA), the buildings and buildings construction sectors combined are responsible for 36% of global final energy consumption in 2018 and nearly 40% of total direct and indirect CO<sub>2</sub> emissions. Appliances (excluding heating, cooking and cooling appliances) are responsible for around 17% of final electricity use by buildings.

Emissions from heating of buildings in Sweden have decreased from 9.3 million tonnes CO<sub>2</sub>e to 0.8 million tonnes over the period from 1990 to 2019. In 2019, the sector accounted for less than 2% of Sweden's total emissions<sup>37</sup>. Emissions from production of materials, construction and demolition of the buildings constitute additional emission<sup>38</sup>. These (scope 3) emissions become increasingly important as buildings are built more energy efficient and the electricity and heat supply is converted to 'greener' sources, reducing scope 1 and 2 emissions. Around half of all life cycle greenhouse gas emissions in new buildings comes from heat and energy use<sup>39</sup>, while approximately 40% comes from use of materials. Emissions associated with construction and demolition accounts for 2-5%.

The construction and real estate sector have a major impact on our common environment. According to the National Board of Housing, Building and Planning's environmental indicators, it accounts for 32% of Sweden's energy use, 31% of waste and 19% of domestic greenhouse gas emissions. Calculations from Sveriges Byggindustrier indicate that the climate impact of new production of a house is as great as the operation of the house for 50 years.

As members of the EU, Sweden, Denmark and Finland are subject to the EU's climate targets of reducing collective EU greenhouse gas emissions 40% by 2030 compared to 1990 levels, increasing the share of renewable energy to 32% and improving energy efficiency by at least 32.5%.<sup>40</sup> The European Green Deal aims for carbon neutrality in 2050.<sup>41</sup> Sweden has developed a National Energy and Climate Plan (NECP) in which it outlines the targets and strategies in all sectors.<sup>42</sup> These strategies include measures such as increasing renewable energy capacity, improving energy efficiency, facilitating the large scale implementation of clean transportation alternatives, and implementing carbon sinks through reforestation and the LULUCF sector. Non-ETS emissions, of which public buildings and households are a part, must decrease by 63% by 2030. In February 2020, Norway released updated targets for 2030 to cut GHG emissions by 50-55% from 1990 levels<sup>43</sup>.

The building sector accounts for a large share of primary energy consumption in most countries, and the IEA reports that the efficiency of building envelopes needs to improve by 30% by 2025 to keep pace with increased building size and energy demand – in addition to improvements in lighting and appliances and increased renewable

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<sup>37</sup> Naturvårdsverket: <https://www.naturvardsverket.se/Sa-mar-miljon/Statistik-A-O-/Vaxthusgaser-utslap-fran-uppvarmning-av-bostader-och-lokaler>

<sup>38</sup> <https://www.miljostatus.no/tema/klima/norske-klimagassutslipp/klimagassutslipp-bygg/>

<sup>39</sup> Asplan Viak AS (2018): Utredning av livsløpsbaserte miljøkrav i TEK, [https://dibk.no/globalassets/02.-om-oss/rapporter-og-publikasjoner/utredning\\_av\\_livsløpsbaserte\\_miljøkrav\\_i\\_tek\\_asplan\\_viak\\_2018.pdf](https://dibk.no/globalassets/02.-om-oss/rapporter-og-publikasjoner/utredning_av_livsløpsbaserte_miljøkrav_i_tek_asplan_viak_2018.pdf)

<sup>40</sup> [https://ec.europa.eu/clima/policies/strategies/2030\\_en](https://ec.europa.eu/clima/policies/strategies/2030_en)

<sup>41</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

<sup>42</sup> [https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans\\_en](https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans_en)

<sup>43</sup> <https://www.regjeringen.no/no/aktuelt/norge-forsterker-klimamalet-for-2030-til-minst-50-prosent-og-opp-mot-55-prosent/id2689679/>



heat sources.<sup>44</sup> The energy efficiency of buildings is dependent on multiple factors including increasing affluence and expectations of larger living areas, growth in population and unpredictability of weather, and greater appliance ownership and use. Additionally, approximately half of life-cycle emissions from buildings stem from materials/construction. The other half stems from energy use, which becomes less important over time with the increasing adoption of off-grid solutions such as geothermal and solar. All of these factors should therefore be considered in the project selection process. In addition, voluntary environmental certifications such as LEED and BREEAM or equivalents measure or estimate the environmental footprint of buildings and raise awareness of environmental issues. These points-based certifications, however, fall short of guaranteeing a low-climate impact building, as they may not ensure compliance with all relevant factors e.g., energy efficiency, access to public transport, climate resilience, sustainable building materials. Many of these factors are covered under the World Green Building Council's recommendations for best practices for developing green buildings.<sup>45</sup> CICERO Shades of Green assesses all of these factors when evaluating the climate impact of buildings.

The Exponential Roadmap<sup>46</sup> lays out a trajectory for reducing emissions by 50% by 2030 and requires that emissions reduction strategies within the buildings sector be rapidly scaled up. The roadmap advocates for standardised strategies that are globally scalable within areas such as new procurement practices for construction and renovation that require dramatically improved energy and carbon emission standards, developing new low-carbon business models for sharing space and smart buildings to achieve economies of scale, and allocating green bond funding for sustainable retrofitting and construction.

A large number of LCA studies show that wood-frame building results in lower primary energy and GHG emission compared to non-wood alternatives including concrete and steel. Less energy, in particular fossil fuels, is needed to manufacture wood-based building materials compared with alternative non-wood materials. Wood-based materials use primarily biomass residues for processing energy. Wooden materials also store carbon during their lifetime, temporarily sequestering carbon from the atmosphere. Large amounts of biomass residues are produced during the manufacture and end-of-life of wood products, and these can be used to replace fossil fuels. Hence, wood-based buildings are appropriate for long-term strategies for reducing fossil fuel use and GHG emissions when combined with sustainable forestry<sup>47</sup>. Quantitative estimates are imprecise, but some studies indicate energy savings in the order of one third in the construction phase of wood buildings compared to buildings using mainly other materials.

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<sup>44</sup> <https://www.iea.org/reports/building-envelopes>

<sup>45</sup> <https://www.worldgbc.org/how-can-we-make-our-buildings-green>

<sup>46</sup> [https://exponentialroadmap.org/wp-content/uploads/2020/03/ExponentialRoadmap\\_1.5.1\\_216x279\\_08\\_AW\\_Download\\_Singles\\_Small.pdf](https://exponentialroadmap.org/wp-content/uploads/2020/03/ExponentialRoadmap_1.5.1_216x279_08_AW_Download_Singles_Small.pdf)

<sup>47</sup> R&D Fund for public real estate, The Swedish Association of Local Authorities and Regions (2016): Climate impacts of wood vs. non-wood buildings. <https://webbutik.skl.se/bilder/artiklar/epub/7585-377-2.epub>



## Appendix 4: About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green, sustainability and sustainability-linked bond investments. CICERO Green also provides Company Assessments, providing an assessment and shading of a company's revenues and investments as well as assessing the governance structure to indicate the greenness of a company. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University and the International Institute for Sustainable Development (IISD).

