

PALOMA ENERGY

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SLOVAK HYGIENIC PAPER GROUP



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Paloma d.d.

Paloma is a joint-stock company with a 150-year tradition in the manufacturing and marketing of tissue paper products in Europe.

We are the market leader in Southeast Europe (SEE) and a highly export-oriented company.

Our annual capacity is 87,000 tonnes of tissue paper, which is converted into high-quality toilet paper, paper towels, and tissues.

Since 2017, Paloma has been a member of the international **SHP Group**, headquartered in Bratislava.

The group is highly export-oriented, selling products in 46 countries across the globe.



Paloma Energy

Paloma Energy is a strategic project, which focuses on the **decarbonization** of our tissue paper production.

Our main objective is to **reduce** our **carbon footprint** and transition to cleaner energy sources.

The paper industry is traditionally energy-intensive, particularly in the drying phase. We need to move away from fossil fuels to meet global sustainability targets.

STEP 1: Electrification & Heat Recovery



Electrification

Hybrid Steam Generation Strategy

We are installing a 10 MW Electric boiler alongside a new high-efficiency natural gas boiler. This setup allows for fuel-switching flexibility based on real-time energy market prices.

Goal: When electricity prices are favourable, we prioritize the electric boiler to minimize our natural gas consumption and drastically reduce CO₂ emissions.

Advanced Heat Recovery: The Re-Evaporation Process

- **Energy Sourcing:** Capturing waste heat from the paper machine exhaust.
- **The Process:** Utilizing a Re-Evaporation system to turn condensate back into steam.
- **Closed-Loop Efficiency:** Re-injecting the superheated steam directly into the Yankee Dryer drying process.
- **Impact:** Drastically reducing the need for primary steam generation ($\approx 20\%$) and lowering overall energy demand.

STEP 2: Biomass Integration



Future Strategy: Transitioning to Biomass

- **Conceptual Phase:** We are currently evaluating the implementation of a **biomass boiler**.
- **Primary Heat Source:** This boiler would serve as the **base-load unit** for process steam production.
- **Carbon Neutrality:** Biomass is considered a **carbon-neutral fuel** source, which would lead to a drastic reduction in our overall CO₂ emissions.
- **Sustainability Milestone:** This step would move Paloma toward nearly complete independence from fossil fuels.

STEP 3: High-Temperature Heat Recovery



Final Phase: High-Temperature Heat Pump (HTHP)

- **Objective:** Capture low-grade waste heat and upgrade it to a higher temperature for industrial use.
- **Technology:** Implementation of a **high-temperature heat pump**.
- **Ongoing Research:** We are currently conducting feasibility studies to identify the optimal integration point within our production process.
- **Efficiency:** This step aims to "close the loop" even further, ensuring that as little thermal energy as possible is wasted.

Why High – Temperature Heat Pump?

- **A Step Beyond Traditional Methods:** While boilers (electric/biomass) solve the supply side, the High-Temperature Heat Pump (HTHP) solves the efficiency side by closing the thermal loop.
- **Technological Maturity & Risk:** This is a pioneering application in the tissue industry. It carries a higher technical risk and R&D investment, making it an ideal candidate for grant support.
- **Financial Synergy & Grant Opportunity:** While the project is strategically prioritized, the final financial construction for the HTHP phase is still not finalized. We are actively seeking non-refundable grants to bridge the investment gap and accelerate the deployment of this **high-innovation technology**.

Conclusion: Driving the Green Transition

- **Strategic Transformation:** Paloma Energy is our roadmap to transforming a 150-year tradition into a carbon-neutral future.
- **Technological Synergy:** By combining **electrification, re-evaporation, and potentially biomass**, we are drastically reducing our reliance on fossil fuels.
- **Operational Flexibility:** Our hybrid boiler system and heat recovery technologies allow us to remain competitive and agile in a volatile energy market.
- **Market Leadership:** These investments ensure that Paloma and the SHP Group remain the preferred sustainable partner in the CEE and DACH regions.
- **Commitment to Efficiency:** From heat pumps to circular steam cycles, we are committed to resource optimization at every stage of production.

Questions?



Thank you for your attention!



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