

Wärtsilä Decarbonisation services

Reduce CO_2 emissions and ensure power availability and reliability with the lowest levelised cost of electricity

Wärtsilä Decarbonisation services help you diagnose your challenges (current ones and/or ones brought by renewable integration), identify, and implement the optimal solutions to decarbonise your power generation. Along with our market leading flexible technologies and expertise, we leverage our power system's modelling capabilities to design the cost-optimal and technical feasible solution which will be implemented with GEMS.

Optimise and decarbonise the whole system from plant to grid

In theory, decarbonisation seems like a simple task, "just replace fossil fuels with renewable energy", "a battery is all you need to minimise renewable curtailment and maintain grid stability". However, in practice, decarbonising power generation is far more complex. It involves overcoming significant technical and economic challenges to ensure a reliable and sustainable energy supply. A balance is needed between commercial, operational, and ESG factors.

Even though our customers are involved in different sectors such as industrials, utilities, and IPPs, they face common challenges and share the same targets: they want to decrease costs & emissions and maintain grid stability. Our objective is to help customers decarbonise their power systems and optimise not just their engine and energy storage performance, but their whole grid, whilst ensuring grid stability, power availability and achievement of the lowest levelised possible cost of electricity ("LCOE").

In practice, decarbonising power generation is complex

A holistic approach is required to balance commercial, operational and ESG factors

- Integrating different assets
- Increasing renewable penetration
- Mitigating intermittency
- Maintaining grid stability



- Decreasing CO2 emissions
- Complying with regulations and policies

- Achieving lowest LCOE
- Decreasing operational costs
- Achieving return on investment

Key benefits

Ensure

- grid stability
- high availability
- compliance
- lowest LCOE
- high renewable penetration
- CO_2 reduction

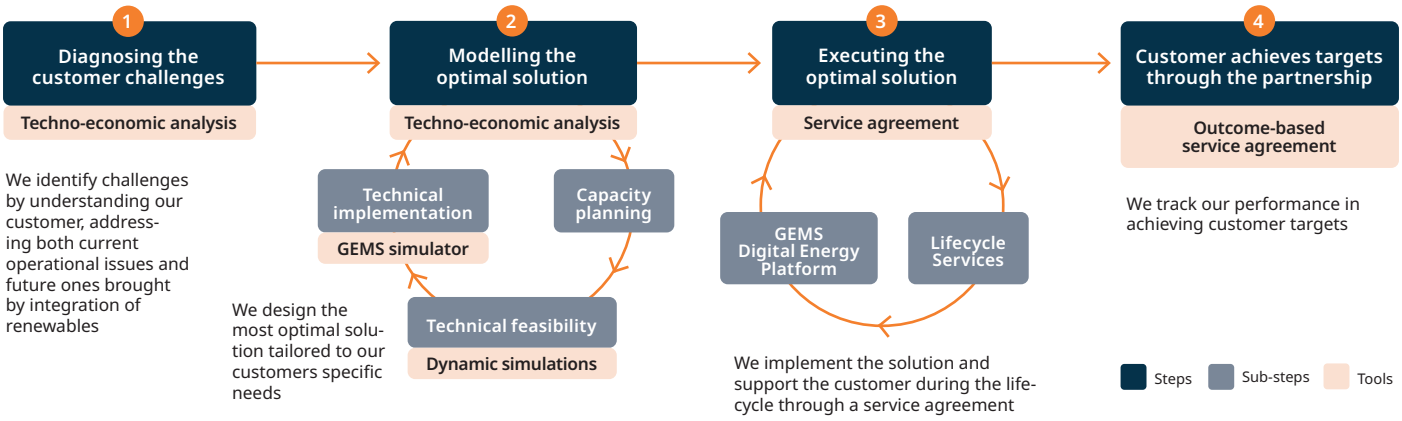
GEMS

Our digital energy platform is at the core of our solution, enabling integration, monitoring, operation of all the assets and drives the grid optimisation.

Secondary and tertiary control functionalities coupled with renewable & load forecasting capabilities.

Our holistic approach offers end-to-end support, positioning us as your trusted advisor and partner

We guide and support you through every step:



How we optimise to decarbonise

Let us diagnose your unique challenge, model the optimal yet feasible solution, and implement it with a service agreement on GEMS Digital Energy Platform and our engines and/or batteries. With partnership through an outcome-based agreement, you can be certain that we will only recommend what you really need – and go the extra mile as our fee is linked to your success. Our holistic approach offers you all the services, equipment, software and support you need every step of the way over the whole lifecycle.

1. **Diagnosing your challenges**
   Using our industry understanding and a techno-economic analysis to identify your challenges whether current operational or future ones brought on by renewable integration. This comprehensive understanding allows us to address both immediate and long-term needs.

2. **Modelling the optimal solution**
   Next, we conduct a techno-economic analysis, where we model the optimal solution by considering cost minimisation and technical feasibility. This involves considering all existing power generation assets and potential additions to the grid. Once we have identified the solution, we perform dynamic simulations to verify its technical feasibility. We test key parameters and run simulations that reflect real-world conditions as closely as possible.
   Before moving to execution, we do one final test of our optimal solution, with GEMS Simulator.

3. **Executing the optimal solution**
   The implementation of our solution is facilitated through a services agreement. We deploy GEMS and provide lifecycle services for your engines and energy storage equipment, ensuring that key components remain in optimal condition throughout their lifecycle.

4. **Customer achieves targets through the partnership**
   Our performance in achieving your targets is tracked, and our fee is linked to your targets as defined in the outcome-based service agreement. This ensures transparency and fosters a collaborative partnership.

Why choose Wärtsilä?

Global expertise and experience
Wärtsilä operates in 180 countries with 79GW of power plants and 130+ energy storage installations. Our deep understanding of power systems enables us to accurately identify and solve customer challenges and offer an asset and manufacturer-agnostic, optimal solution tailored to your needs. A Net Promoter Score of 73 (2024) shows that our customers appreciate what we do for them.

Holistic approach
Our holistic approach utilises power system modelling, in-depth technical expertise in engine technology and energy storage systems, and our proficiency in energy system optimisation. By combining these, we deliver comprehensive solutions that drive decarbonisation and create value for our customers.

We can help you meet your targets
With a 90% renewal rate for lifecycle services, our commitment to our customers long-term success is clear. We can help you succeed further with our outcome-based agreements.

Our success depends on yours
Our outcome-based fee structure ensures shared responsibility and long-term value. We will not recommend a solution which doesn't work since our fee is dependent on customer success.

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