Why Distributed Energy Systems Becoming More Popular in Remote Areas, City Districts and Industrial Facilities

ACEF 2017, Decentralized Energy Systems
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From centralized, unidirectional grid ...
… to distributed energy and bidirectional energy balancing
Distributed energy systems market grows faster

- Shift in fuel mix
- Competitiveness of new technologies
- Favorable regulation
- Capacity build-out: Renewables overtaking fossil

Capacity added in GW

<table>
<thead>
<tr>
<th>Year</th>
<th>Distributed</th>
<th>Central</th>
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</thead>
<tbody>
<tr>
<td>2000</td>
<td>170</td>
<td>24%</td>
</tr>
<tr>
<td>2010</td>
<td>250</td>
<td>36%</td>
</tr>
<tr>
<td>2020</td>
<td>270</td>
<td>46%</td>
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Remote areas
Needs and Solutions

Your Needs

1. Reliable power supply
2. Lower energy prices
3. Growing energy demand
4. No investment costs

Siemens solutions

1. Technical and economical consulting
2. Optimized plant design for LCoE, IRR, Payback
3. Scalable plant design
4. Financing & Performance contracting
Remote areas
Galápagos Isabela Island becomes 100% renewable with Siemens turnkey solution

1.6MW Reciprocating Engines on Biofuel
920 kW PV Power
620kW Battery Energy Storage System
100% Renewable Energy

*) Project in execution
City district & Campus
Your challenges - our answers

Your challenges

- Energy supply security
- CO₂-saving energy provision
- Maintenance of residential value through stable energy costs
- High residential quality through clean and quiet technologies
- CO₂-free mobility concepts
- Cyber security

Answers tailored to your requirements

Transmission & distribution

Decentralized generation

Storage

Energy mgmt. (consumer/producer)

Financing concepts

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City district & Campus
Siemens Energy Campus Erlangen

- Land area: ~540,000 m²
- Number of current buildings: >80
- Current built-up area: 350,000 m²
- Project duration: 2015-2030
- Total above-ground floor space on completion:
  - Offices: 320,000 m².
  - Hotel, restaurants: 50,000 m²
  - Accommodation: 100,000 m²
Industrial application
Your challenges - our solutions

Your challenges

- Rising energy costs
- Security of energy supply
- Thermal and electrical energy demand
- Reduce energy consumption
- Strengthening of market position
- No/low investment costs

Tailored solution for your long-term success

Financing concepts
Industrial application
India, electrical equipment factory

- **Land area:** ~240,000 m²
- **Use of buildings:**
  - Manufacturing, Logistics, R&D, Office
- **Demand reduction and optimized energy supply**
  - LED lighting
  - Central building management system
  - Use of back-up Diesel and electrical Storage to avoid peak tariff
  - PV installation on rooftop and canopy
  - Central AirCon and ice storage
- **Investment and savings:**
  - Invest 1'5 $, payback ~4 years
  - CO2 savings ~1.200 t per year
Siemens contact

Steffen Scudlo
Business & Project Development
Decentralized Energy Systems

Freyeslebenstrasse 1
91058 Erlangen

Mobile: +49 (174) 1809175
E-mail: steffen.scudlo@siemens.com