

# TÜV NORD

## Introducing the Company

for

**German Global Trade Forum Berlin, Ltd.**

Business Mission to China 2012

Green Cities - Green Industries

# TÜV NORD, a competent and international service partner



- **Competence**  
with broad expertise, impartial and independent
- **International**  
present at locations throughout the world
- **Your partner**  
thanks to customer orientation, comprehensive service and reliable expert consultancy
- **Strategic M&A Investor**  
partnership approach focusing on long-term relationships

## Our key data



- Foundation of the associations:
  - TÜV Nord e.V.: **1869**
  - RWTÜV e.V.: **1872**
  - TÜV Hannover/Sachsen-Anhalt e.V.: **1873**
- Foundation of TÜV NORD: **2004**
- Headquarter: **Hanover, Hamburg, Essen (Germany)**
- Number of employees: **more than 10.000**
- Turnover in 2010: **€923 million**
- Turnover in 2012 exp.: **over €1.000 million**
- operates in more than: **70 countries**

# International / Operations of TÜV NORD



## TÜV NORD AG

Business Unit  
**Industrie  
Services**

**TÜV NORD  
Systems**

**TÜV NORD  
SysTec**

**TÜV NORD  
EnSys Hannover**

**TÜV NORD  
CERT**

Companies

Business Unit  
**Mobility**

**TÜV NORD  
Mobilität**

Companies

Business Unit  
**Training and  
Human  
Resources**

**TÜV NORD  
Academy**

**TÜV NORD  
Bildung**

Companies

Business Unit  
**International**

**TÜV NORD  
International**

Companies

Business Unit  
**Natural  
Resources**

**DMT**

Companies

Business Unit  
**Aerospace**

**ATG**

Companies

Central Service  
Unit  
**Administration**

**TÜV NORD  
Service**

**Service**



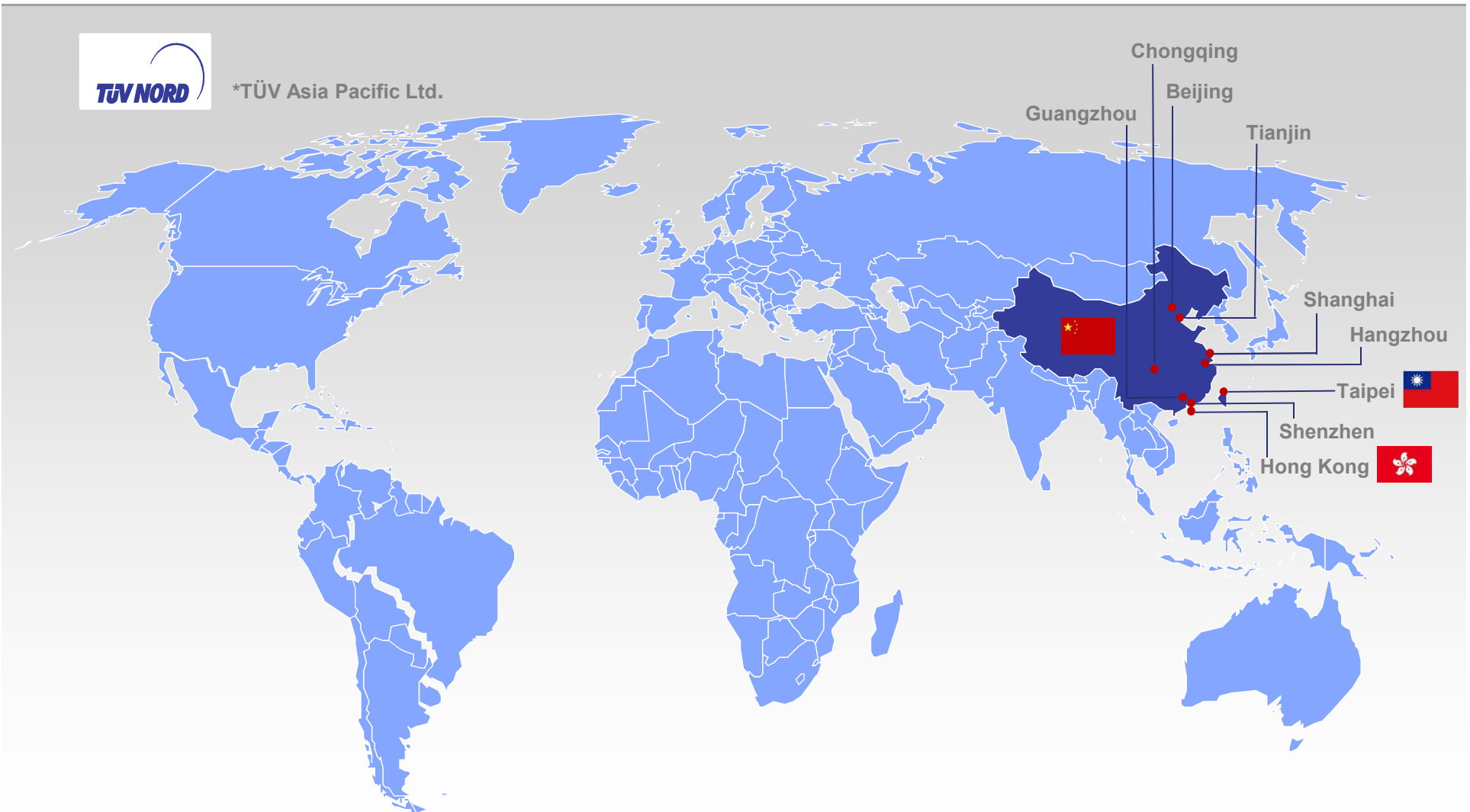
## New areas of work year after year

- Steam boilers
- Mining
- Conveyor systems
- Electrical systems
- Pressure vessels
- Materials
- Motor vehicles
- Welding
- Driving licence examinations
- Piping
- Tank farms & storage tanks
- On-site supervision
- Noise control
- Conventional power generation
- Nuclear energy
- Education
- Occupational safety
- Occupational medicine
- Radiation protection
- Microelectronics
- Water protection
- Medical devices
- Biotechnology
- Quality assurance
- Information technology
- Telecommunications
- Certification
- Environmental impact assessment
- Renewable energies
- IT security
- Railway technology
- Data protection
- Health
- Aviation
- Natural resources
- Aerospace

# Asia and Pacific Region Presence - Greater China



\*TÜV Asia Pacific Ltd.



## Qualified personnel provide the basis for high-level services



- Aerospace engineers
  - Automotive engineers
  - Biologists
  - Chemists
  - Civil engineers
  - Economists
  - Electrical engineers
  - Geographers
  - Geologists
  - IT specialists
  - Materials engineers
  - Mechanical engineers
  - Medical specialists
  - Meteorologists
  - Physicists
  - Process engineers
  - Psychologists
- 70% of all employees work in the technical domain.
  - More than 2/3 of these are graduate engineers, and the rest are master craftsmen or technicians.

# The future: long term perspective



## Positioning of TÜV NORD Group The long-term perspective 2020



profile

period: 2020

period: 2015



„The Safety Experts“



„The Technology Consultants“



„The Safety Experts“



„The Innovators“



„The Technology Consultants“



„The Safety Experts“

time



# Metropolitan Solutions



# Metropolitan Solutions – Building Solutions

## Urban planning



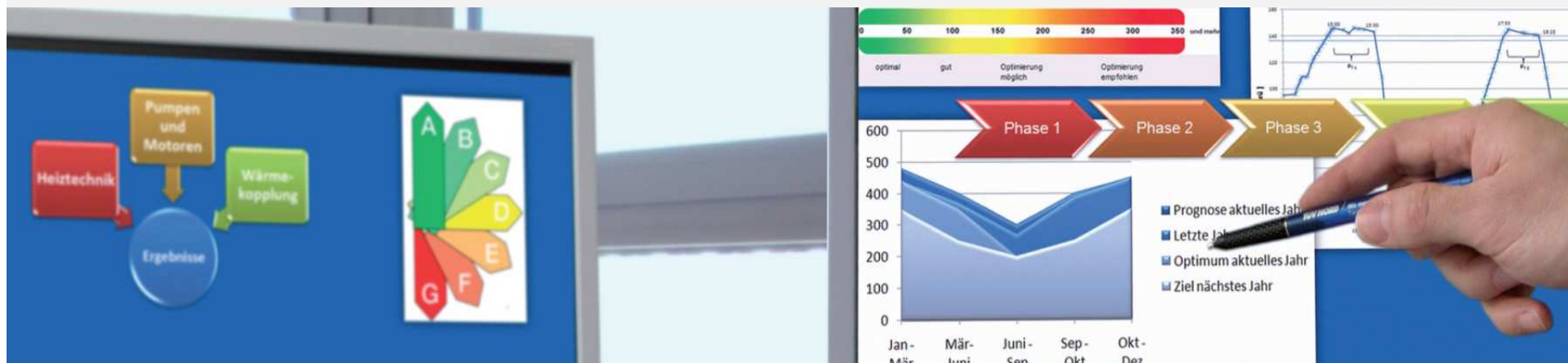
- Land use plans
  - Calculation and measurement of noise
  - Proposals for proper assessment
  - Preparation of appraisals for identifying commercial and industrial areas
  - Calculation of noise immission plans
- Authorization procedures
- Development plans
  - Project and infrastructure plans
  - Interior and exterior zone rules
  - Change prevention policy
- Environmental report
- Green structures plan

# Metropolitan Solutions – Building Solutions

## Energy management system (EnMS)



- Concetption and implementation
  - According ISO 50001
- Analysis of the organizational and communication structure
- Determination of unused potential
  - Energy controlling
  - Recording of energy data
  - Recording and assessment of energy consumers
- Defining and optimizing of energy-relevant operational processes and systems
- Identification of existing suboptimal features
- Continuous monitoring of the improvement
  - Review and adaption of the methods of measurement and assessment
- Preparation on internal energy audits and management reviews





## Metropolitan Solutions – Building Solutions

### Carbon neutral building, Carbon neutral company



- Certificate “Carbon Neutral Building”
  - Certificate “Carbon Neutral Erection” one-off certification
  - Certificate “Carbon Neutral Building Utilisation” annual certification
- Certificate “Carbon neutral Demolition”
- Certificate “Net Zero Emission Building”
- one-off certification before the start of erection regarding the calculated carbon footprint for building operation
- Certificate “Carbon Neutral Company”
  - Verification of the Carbon Footprint for companies
  - Compensation of CO2 emissions by making valid CO2-Certificates available

# Metropolitan Solutions – Building Solutions

## Environmental report



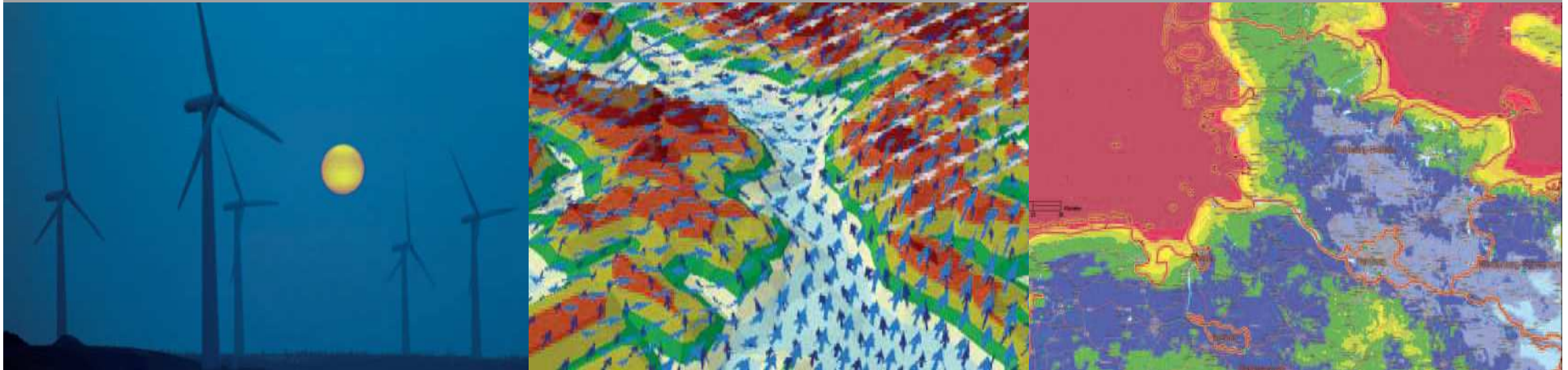
- Basic evaluation
- Determining of effective factors of the project
  - construction phase, normal operation, interruptions of operation, decommissioning
- Condition analysis
- Impact forecast
- Total assessment by experts
- environmental impact study





## Metropolitan Solutions – Building Solutions

### Energy production: Wind energy



- Due diligence examinations
- Certification of systems and system components
- Onshore and offshore facilities
- Wind potential, energy analysis
- Site appraisals, project inspections, ground expert reports
- Performance curve measurements and acoustic inspections
- Risk and damage assessments
- Quality management
- Acceptance testing and regular inspections
- Production inspections

## Metropolitan Solutions – Building Solutions

### Energy production: Photovoltaics



- Design approval and certification of photovoltaic modules and power converters forming part of photovoltaic energy systems
  - According to EN 61730-1, EN 61730-2, EN 61215 and prEN 62109-1
  - Execution of type approval testing, initial inspection of the production site, test symbol and manufacturing monitoring control measures
- "TÜV NORD type-tested"
  - Symbol ensures safety and guarantees compliance with the respective product standard and the rules of good technological practice



## Metropolitan Solutions – Building Solutions

### Energy production: Biogas



- Feasibility and profitability analyses
- Support in licensing procedures
- Explosion, fire and lightning protection
- Safety tests
- Construction supervision, performance measurement and guarantee acceptance
- Certification of biogas plants, components and products



## Metropolitan Solutions – Building Solutions

### Energy production: Fossil energies



- Certification „Carbon Capture Ready“
- Designing testing intervals and scopes
- Emission measurements
- Material tests and damage inspections
- Performance and efficiency calculations
- Emissions trading
- Emissions measurement
- Valuations for power plants
- Life cycle analyses

## Metropolitan Solutions – Building Solutions

### Energy Distribution: Pipelines



- Planning and routing of pipelines
- Draw up approval documents
- Undertake environmental compatibility studies
- Test concepts
- Quality assurance
- Selection of materials and processing methods
- Lifetime calculations
- Pigging data assessments
- Periodic testing
- Protective measures against operational disturbance





# The Ecopark Project



## TÜV NORD – 2<sup>nd</sup> Party Assessment of the Ecopark Index-System

中德生态园指标体系二方评估



中德生态园

Economic and Technological Development Zone of Qingdao

## Ecopark Index-System 生态园指标体系



**Economic  
Optimization**  
经济优化



**Environmental  
Friendly**  
环境友好



**Resource  
Saving**  
资源节约



**Inclusive  
Development**  
包容发展



**Qualitative  
Indicators**  
定性指标

Contains 40 Indicators from 5 main areas  
指标体系包含40个指标，涵盖五个方面

# Ecopark Index-System 生态园指标体系



Topics	Sub Topics	Indicators	NO.	Indicator Value	
				The Year of 2015	The Year of 2020
		Coverage of Social Insurance for Local Residents	32	100%	100%
	Exchange and Cooperation Strengthening	Professional Training Hours for Labor Polulation	33	≥20 hours/year	≥25 hours/year
		Frequeny of Sino-Germany exchange activities	34	≥1次/年	≥1次/年
Qualitative Indicators		Improving Air Quality	35	N/A	N/A
		High level Delivery of Intelligent System on site	36	N/A	N/A
		Priority of New Marine Industry	37	N/A	N/A
		Local Industrial Symbiosis and Encourage of Service Facilities for Key Industries	38	N/A	N/A

## Requirements 主要评估依据

- Domestic Regulation  
国内规范、规划或标准
- International Guidelines  
国际导则
- Statistic Data  
统计数据
- Best Practice  
最佳实践案例

## Indicator Value 指标值

- Measurability of the objectives  
设置可测量、可达到的目标值

## Project participation 项目各参与方

- **Customer/ Owner**  
Sino-German Ecopark  
客户/业主：中德生态园

- **Concept & Design**  
Bluepath City Consulting  
指标体系设计：天津御道工程咨询有限公司

- **2nd Party**  
TÜV NORD – China  
二方评估：**TUV NORD** 中国









- **Project Management**  
Sino-German Ecopark -  
Construction Headquarter Office  
项目管理：中德生态园建设指挥部

**Assessment 评估**

**Statement of the Ecopark Index-System**  
中德生态园指标体系评估意见

## Procedure 工作方法及流程



No. 步骤	Tasks 工作	Project plan 项目过程									
											
1	<b>Pre-study</b> (Index, Guidelines, Statistic data) 文献评估（项目设计相关文献）										
2	<b>On site audit</b> (Interview: Ecopark Projekt Team) 现场探勘（对项目团队进行访谈）										
3	<b>Technical assessment</b> (review, evaluation of documents) 技术评审（对相关报告进行审核评估）										
4	<b>Statement</b> (Assessment Report) 评估意见（评估报告）										



## Assessment Principle 评估标准—原则



**SMART - Specific, Measurable, Achievable, Relevant, Time-based**  
具体的、可量化、可实现、有相关性、有时限性

**Conformity**  
符合评估

Comparison of the domestic and international references with the design of the indicators  
对指标体系和国内国际参考文献、指标进行比较

**Qualitative**  
定性评估

Decide by experts' taking the applicability and relevance of the references into account  
基于专业能力，对文献的适用性、相关性和现实符合度进行分析

**Practical**  
实践评估

On site interview whether the index was designed with consideration of the existing development plan and implementation in future practice  
现场踏勘和访谈中，评估指标体系的设计是否考虑了当地的规划

**Transparency**  
透明评估

The assessment process and conclusion/opinion were well documented to make further decision with reasonable confidence  
评估过程和结论均在报告中详尽反映，为报告使用者提供进行理性判断的支撑

## Appraisal Level 评估

Based on assessment principle, each indicator was assessed and classified into four levels.

根据评估原则，对每个指标评级，共分四级



# Statement 评估意见



## STATEMENT SINO-GERMAN ECOPARK INDEX SYSTEM ASSESSMENT

### 2<sup>nd</sup> Party Assessment according to

- Domestic Regulation, Standards and Planning
- International Recognized Guidelines
- Statistic Data
- Best Practice

based on the objective evidence collected during the assessment

The Sino-German Ecopark Key Performance Index System (hereafter refers to "the index system"), which is designed for the Ecopark located in the Economic and Technological Development Zone of Qingdao, is assessed by TÜV NORD and it is hereby stated that

- **The index system is applicable for the international Ecopark sustainable development**
- **The index system represents the advanced level of the Ecoparks in China**

The contribution of each indicator:

Indicator	Appraisal Level				Indicator	Appraisal Level			
	AD	FU	AC	IO		AD	FU	AC	IO
1					21				
2					22				
3					23				
4					24				
5					25				
6					26				
7					27				
8					28				
9					29				
10					30				
11					31				
12					32				
13					33				
14					34				
15					35				
16					36				
17					37				
18					38				
19					39				
20					40				



	Advanced (AD)	Fulfilled (FU)	Acceptable (AC)	Improvement Opportunity (IO)
Legend				
Percentage in total index	32.5%	50.0%	7.5%	10.0%

Report No. TN-CC-VA1201

Authorized Signature  
Mr. Paul van Breukelen  
CEO of Far East TÜV NORD

This statement demonstrates the assessment of the index system, any other use is strictly prohibited without authorization.

TÜV NORD CERT GmbH

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The statement is signed on

2012-04-15

TÜV NORD China

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P.R.China, 200001

<http://www.tuv-nord.com.cn>

- The index system is applicable for the international Ecopark sustainable development  
指标体系符合国际生态园可持续发展的实践要求
- The index system represents the advanced level of the Ecoparks in China  
指标体系代表了国内的先进水平

## Improvement Opportunities 持续改进



\* ID = Indicator No.

### Further Cooperation Opportunities

- Capacity building in sustainability field
- Indicator monitoring & measurement development
- Technical support for the green institute
- Technology, consultation and experience
- Exchange
- Customer-oriented service



# TÜV NORD Capacity in the Sustainability



- Carbon Footprint
- Eco-design
- Carbon neutrality
- Carbon offsetting
- GHG assessments
- Carbon Academy



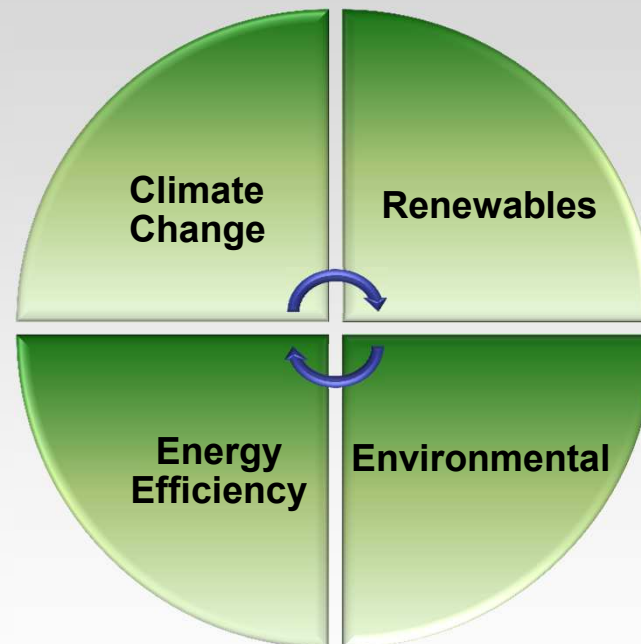
- Green Building
- Energy Efficiency Solution
- 2<sup>nd</sup> party Energy management audit
- Energy Systems



- PV module testing & certification
- Training and consultation for lab
- Factory inspection
- Pre-shipment inspections



- Wind turbine safety inspection
- Certification
- Production inspections
- Due diligence examinations
- Performance measurement



- Life Cycle Assessments, Eco Balancing Environmental Impact Analysis
- Environmental management
- Social Accountability
- Sustainability reports

## TÜV NORD – contacts 联系方式



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