



从单体建筑 到社区

FROM BUILDINGS TO A DISTRICT

2000瓦社区认证体系

2021年第八届全国近零能耗建筑大会
8th China National NZEB Conference; Xi'an, 20th Dec. 2021

INTEP/SKAT
SWITZERLAND
20th December 2021

THE 2000 WATT
DISTRICT CERTIFICATE



茵态的服务包括社会，环境和经济领域的综合咨询和应用性研究

Intep's services include integrated consulting and applied research in the areas of society, environment and economy

- Daniel Kellenberger 丹尼尔·凯伦拜格尔
- Rural Planner, ETH Zurich 苏黎世联邦理工学院乡村空间规划师
- Department Leader Climate Protection and Energy Management
茵态保护气候和能源管理部门总监
- 25 years of experience in sustainable construction
在可持续建造领域25年工作经验
- National Project leader and regional manager for the 2000-Watt-Districts, mandated by the federal office of energy
受瑞士联邦能源署委托，领导2000瓦社区国家和区域项目

关于intep（茵态）及其发言人

ABOUT INTEP AND THE
PRESENTER

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Feasible for Architects and Engineers 对建筑师和工程师而言的可行性

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2000瓦社区认证体系

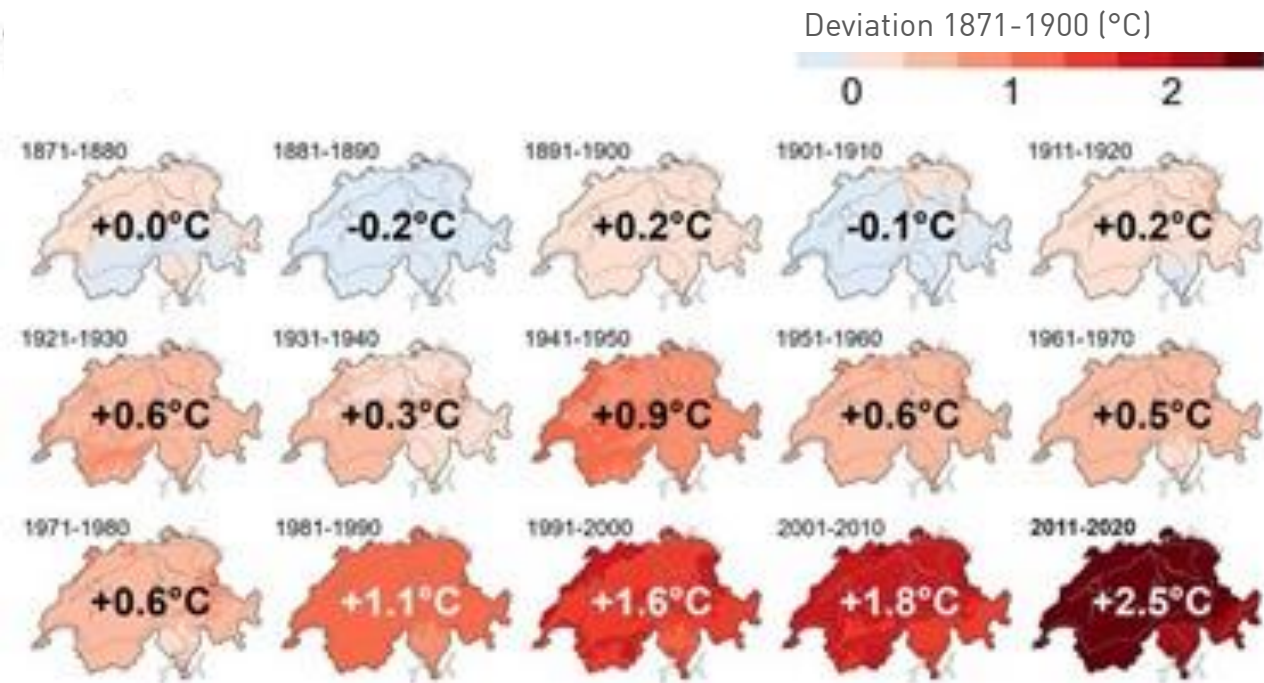


瑞士的国家战略

NATIONAL STRATEGIES

瑞士国家战略

NATIONAL STRATEGIES



2050能源战略

Energy Strategy 2050

2030可持续发展战略

Sustainable Development Strategy 2030

2050年气候战略

Climate Strategy 2050:

2050年实现温室气体净零排放目标

NET ZERO GREENHOUSE GAS
EMISSIONS TARGET BY 2050

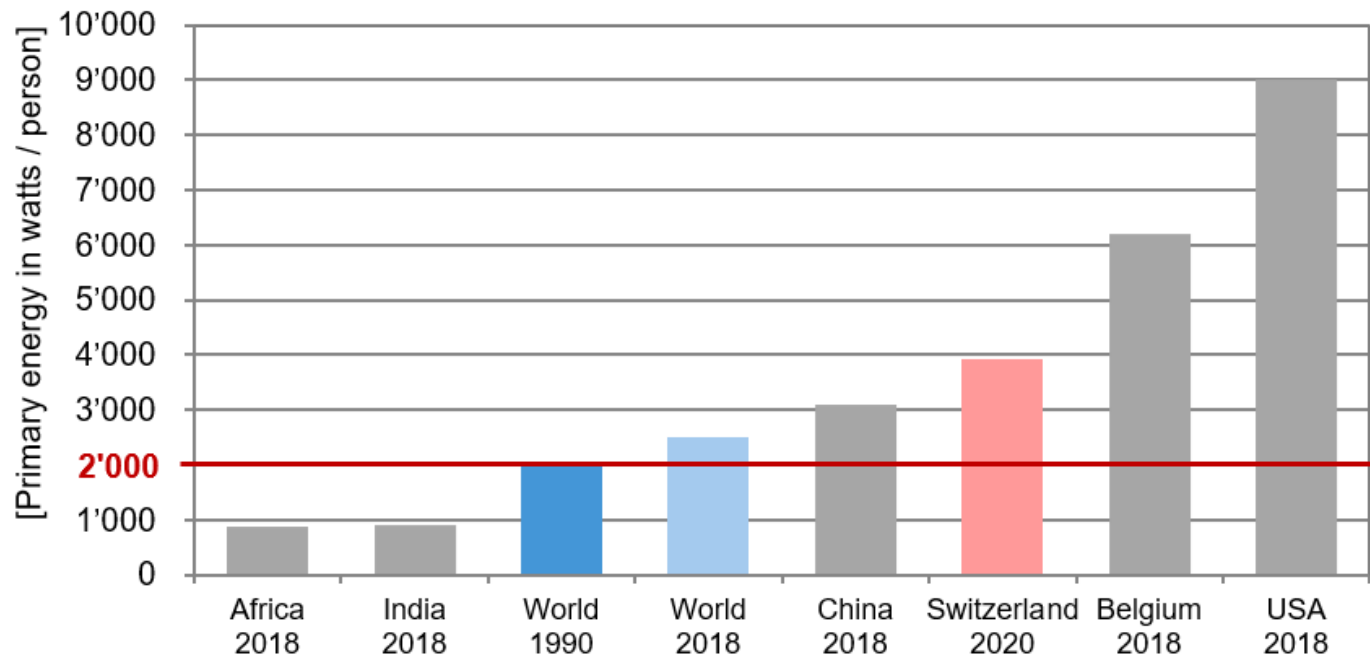


智慧生活模式：2000瓦社会

SMART LIVING: 2000-WATT-SOCIETY

Global primary energy consumption

Continuous rating (primary energy level) in watts per person



Graph: 2000-watt society, 2021.

Data basis: International - IEA key world energy statistics 2020.

Switzerland - Total energy statistics 2020, KBOB recommendations.



从正义到愿景

FROM JUSTICE TO A VISION

瑞士能源政策的愿景

Energy policy vision in Switzerland

不同战略的共同目标

Summarizes goals from different strategies

人均2000瓦持续功率

2000 watts continuous power for every person

每代人和每个国家都能平等用能

EQUAL ACCESS TO ENERGY FOR ALL
GENERATIONS AND COUNTRIES

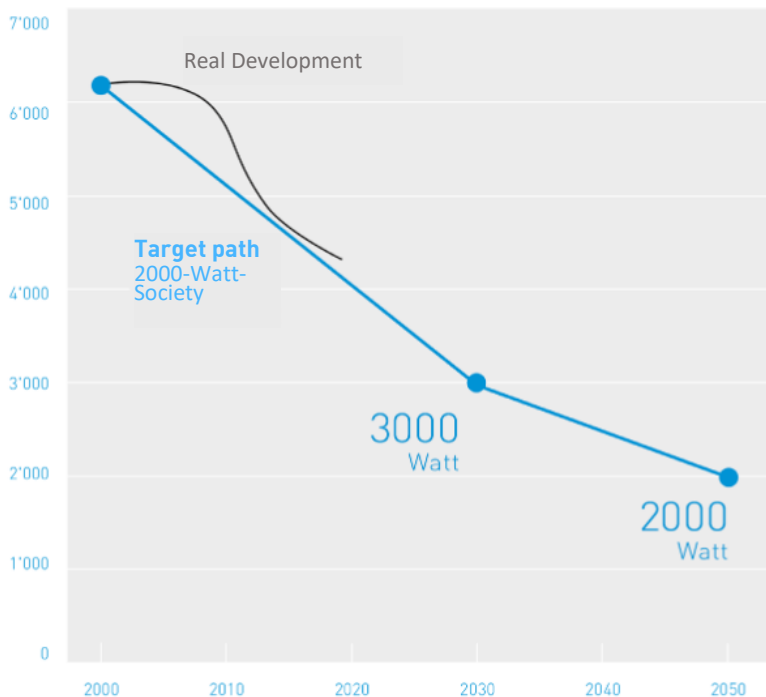
目标1：能效

Objective 1: Energy Efficiency

2000 Watt primary energy

Continuous output

2000瓦一次能源持续输出

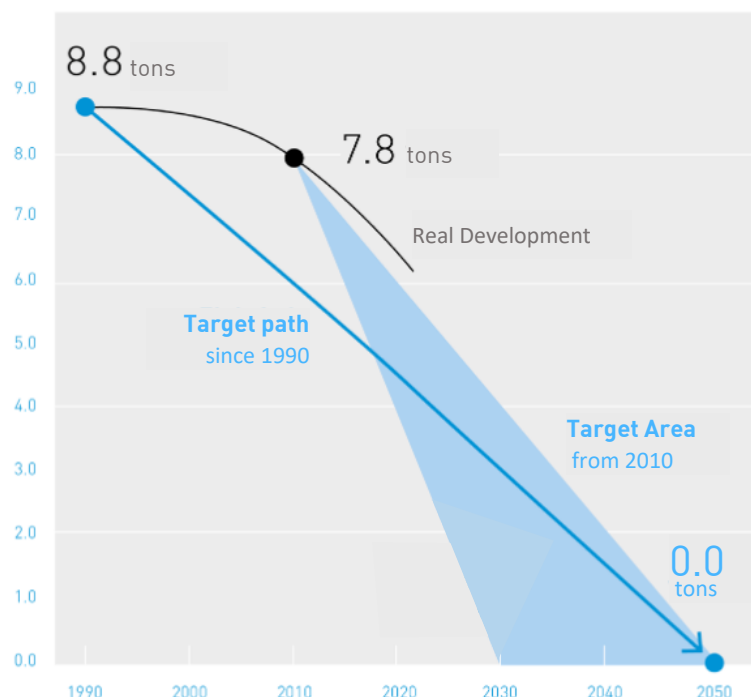


目标2：气候中和

Objective 2: Climate neutrality

Zero energy-related greenhouse gas emissions

与能耗相关的温室气体零排放

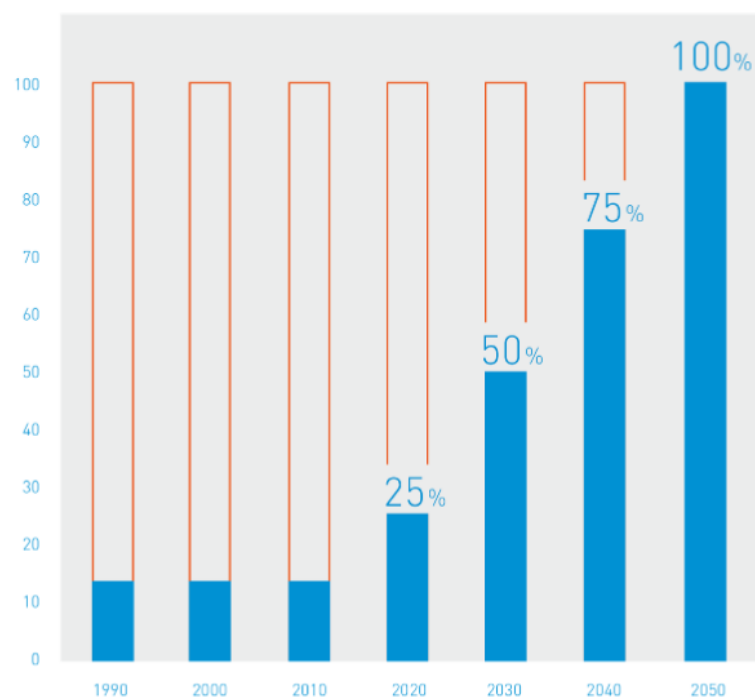


目标3：可持续性

Objective 3: Sustainability

100% renewable energy

100%可再生能源

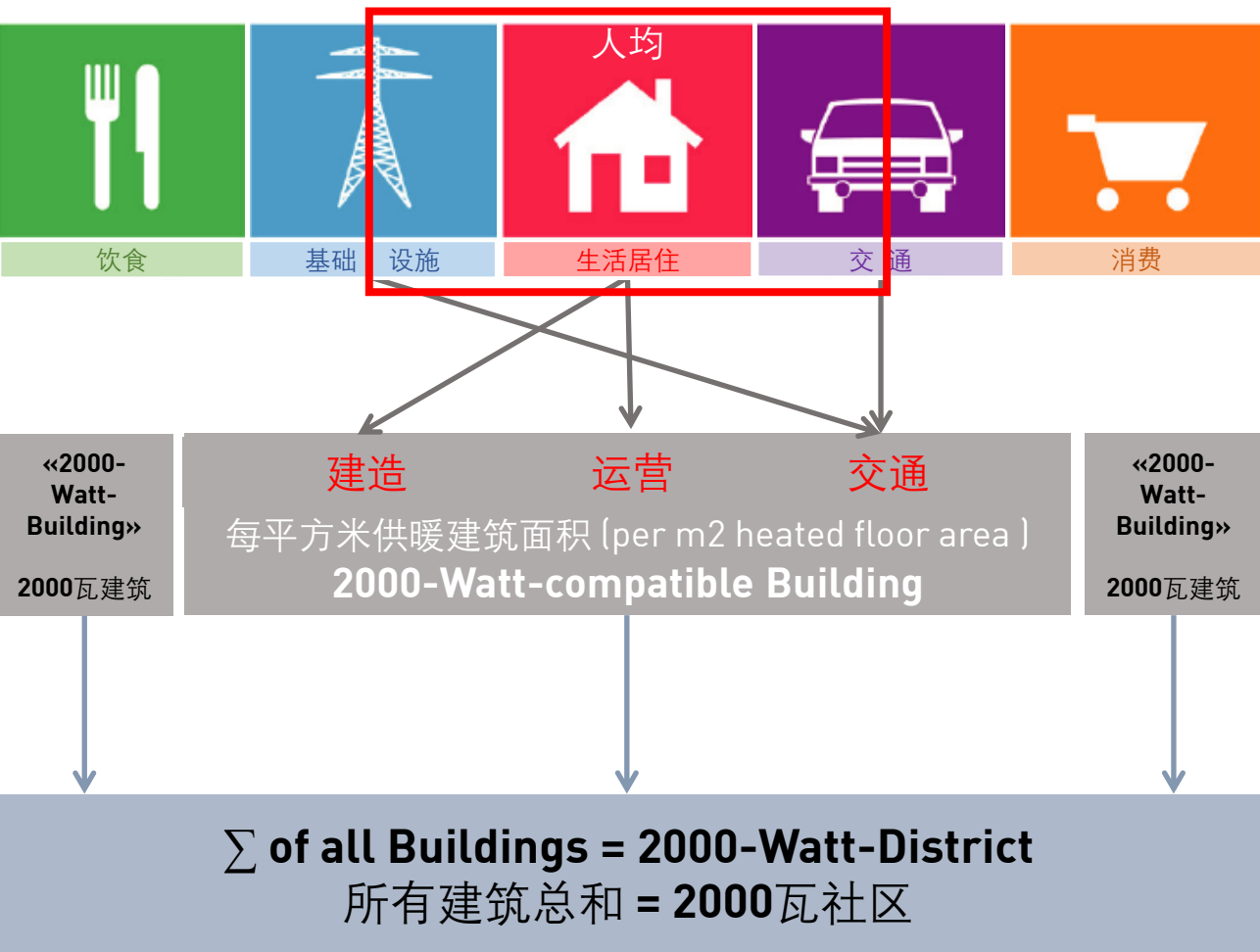


2000瓦社会2050年的目标



EnergieSchweiz
 für Gemeinden
**2000-Watt-
Gesellschaft**

OBJECTIVES 2000-WATT
 SOCIETY BY 2050



建筑师和规划师的影响领域

INFLUENCING FIELDS BY ARCHITECT AND PLANNER

日常交通（按地点和用途来定义）

Daily mobility (defined by location and use)

建造（隐含能耗和碳排放）

Construction (embodied energy and carbon)

运营（运营能耗和碳排放）

Operation (operational energy and carbon)

人均1/3碳足迹



EnergieSchweiz
für Gemeinden
2000-Watt-
Gesellschaft



ABOUT 1/3 OF THE
FOOTPRINT PER CAPITA



可持续的邻里关系：2000瓦社区

SUSTAINABLE NEIGHBORHOOD:
2000-WATT-DISTRICT

2000-WATT-DISTRICT 2000瓦社区



From single building to neighbourhood 从单体建筑到社区

Focus on life cycle of materials and energy 聚焦材料的生命周期和能耗

Focus on climate and energy efficiency 聚焦保护气候和能效

Focus on high quality of living 聚焦生活高质量

Unit: per m² heated floor area and year 单位：每年每平方米供暖面积

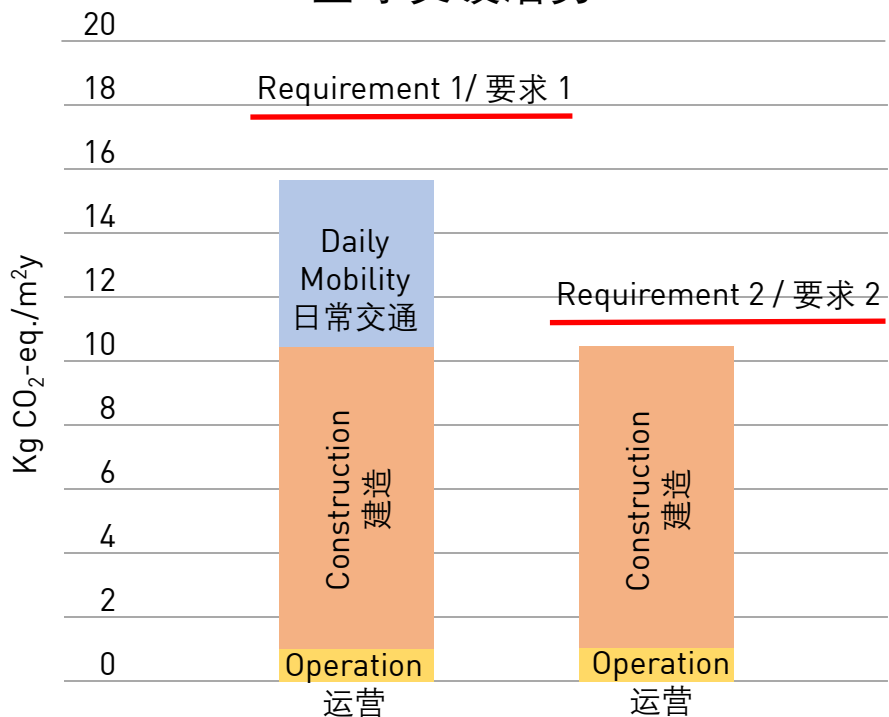
Certificate, not only standard 认证，而不只是标准

为社区层面上的零碳目标 提供更多机会

MANY MORE OPPORTUNITIES FOR
ZERO CARBON ON DISTRICT LEVEL

Global Warming Potential

全球变暖潜势



简单的评估方法：硬性因素

SIMPLE ASSESSMENT: HARD FACTORS

一次能源总量，不可再生的，全球变暖潜势

Primary energy total, non-renewable, global warming potential

系统边界：日常交通，建造，运营

System boundary: Daily Mobility, Construction, Operation

计算方法基于瑞士工程师和建筑师协会（SIA）

编写的标准

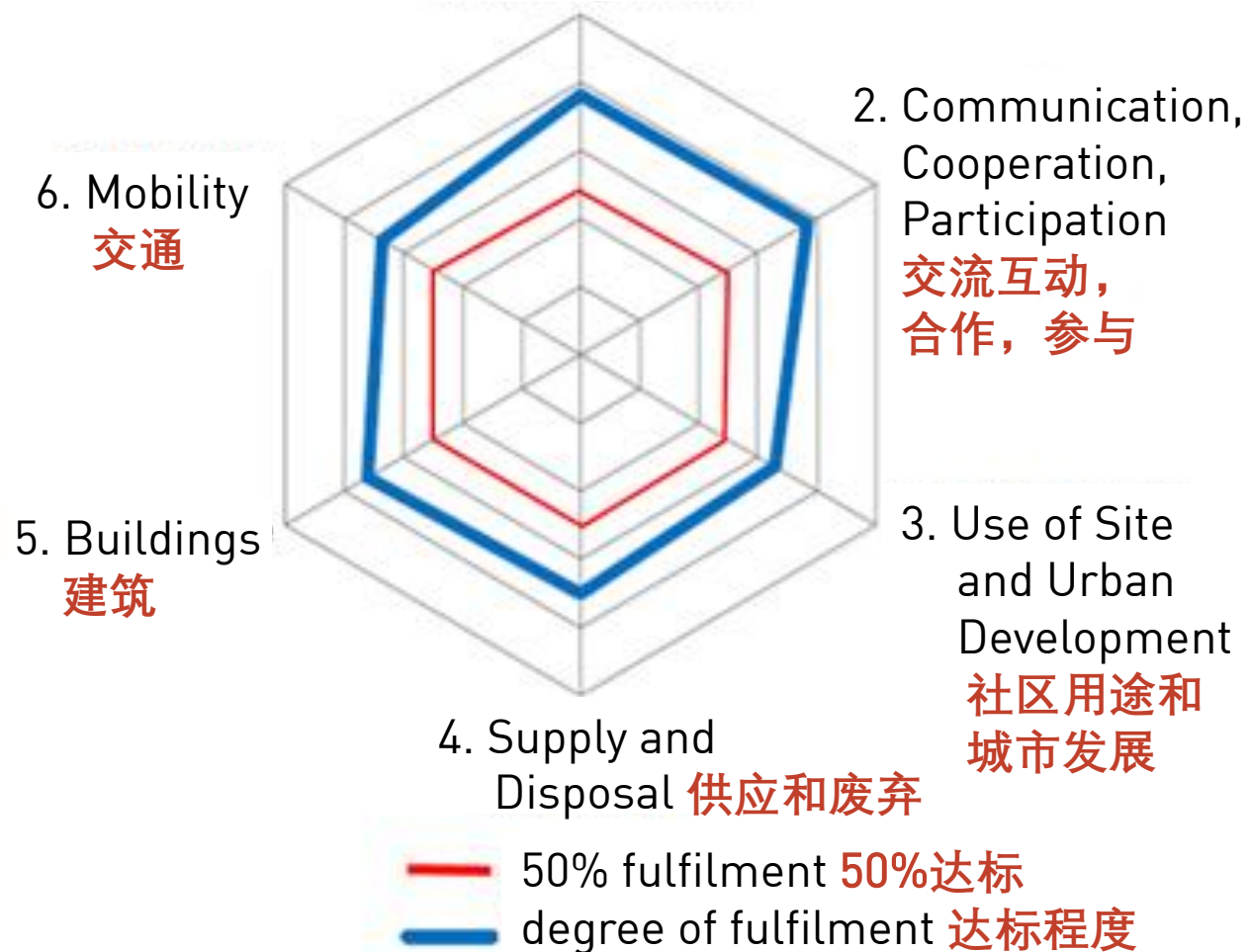
Calculation method based on standard from Society of Swiss Engineers and Architects

设定目标，而不是路径



THE GOAL IS SET,
NOT THE PATH

1. Management 组织管理



简单的评估方法：软性因素

SIMPLE ASSESSMENT: SOFT FACTORS

质的要求

Qualitative requirements

6个领域

6 subject areas

按达标程度来测定

Measured in fulfilment grades (mind. 50%)

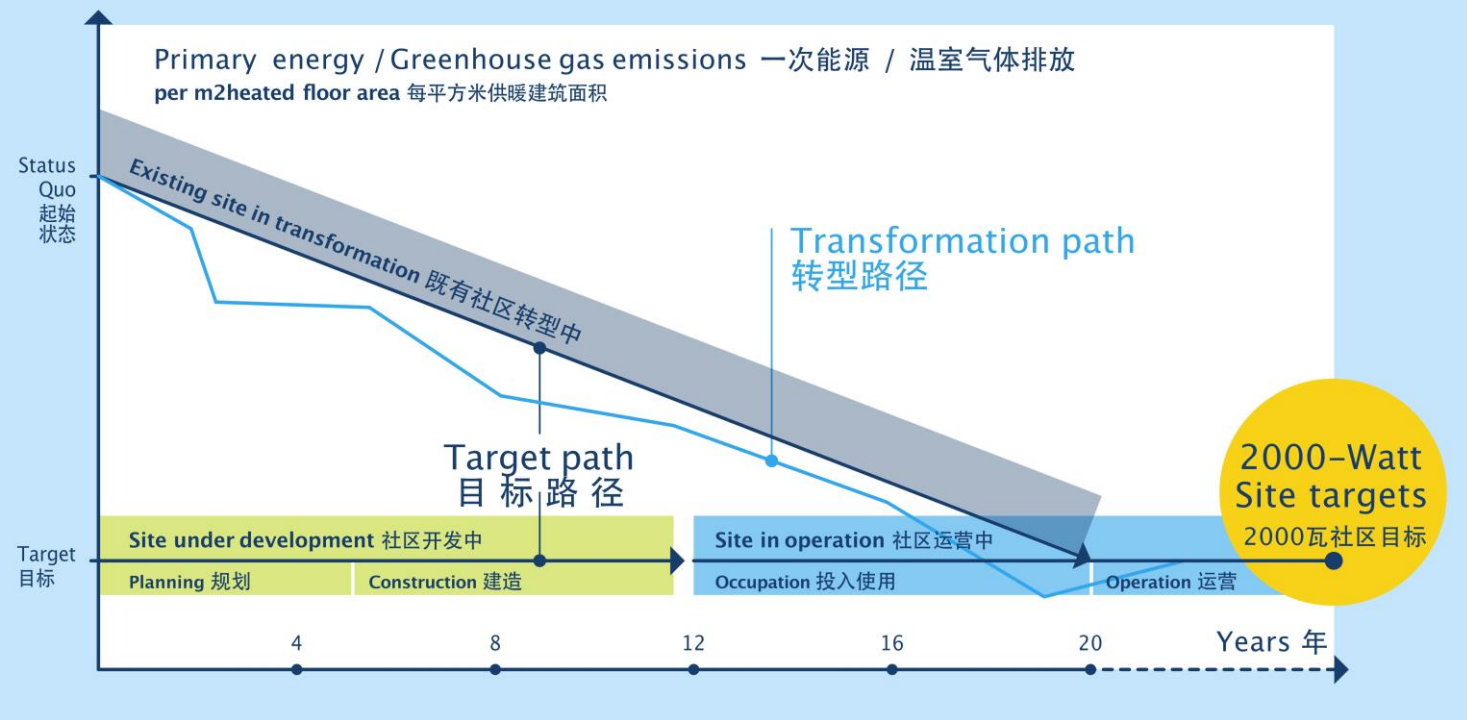
设定目标，而不是路径



THE GOAL IS SET,
NOT THE PATH

不同特性的社区

DIFFERENT SPECIFICATIONS



规划和建造阶段（新社区）

In Planning and Construction (new Districts)

运营阶段（新建和既有社区）

In Operation (new & existing Neighbourhoods)

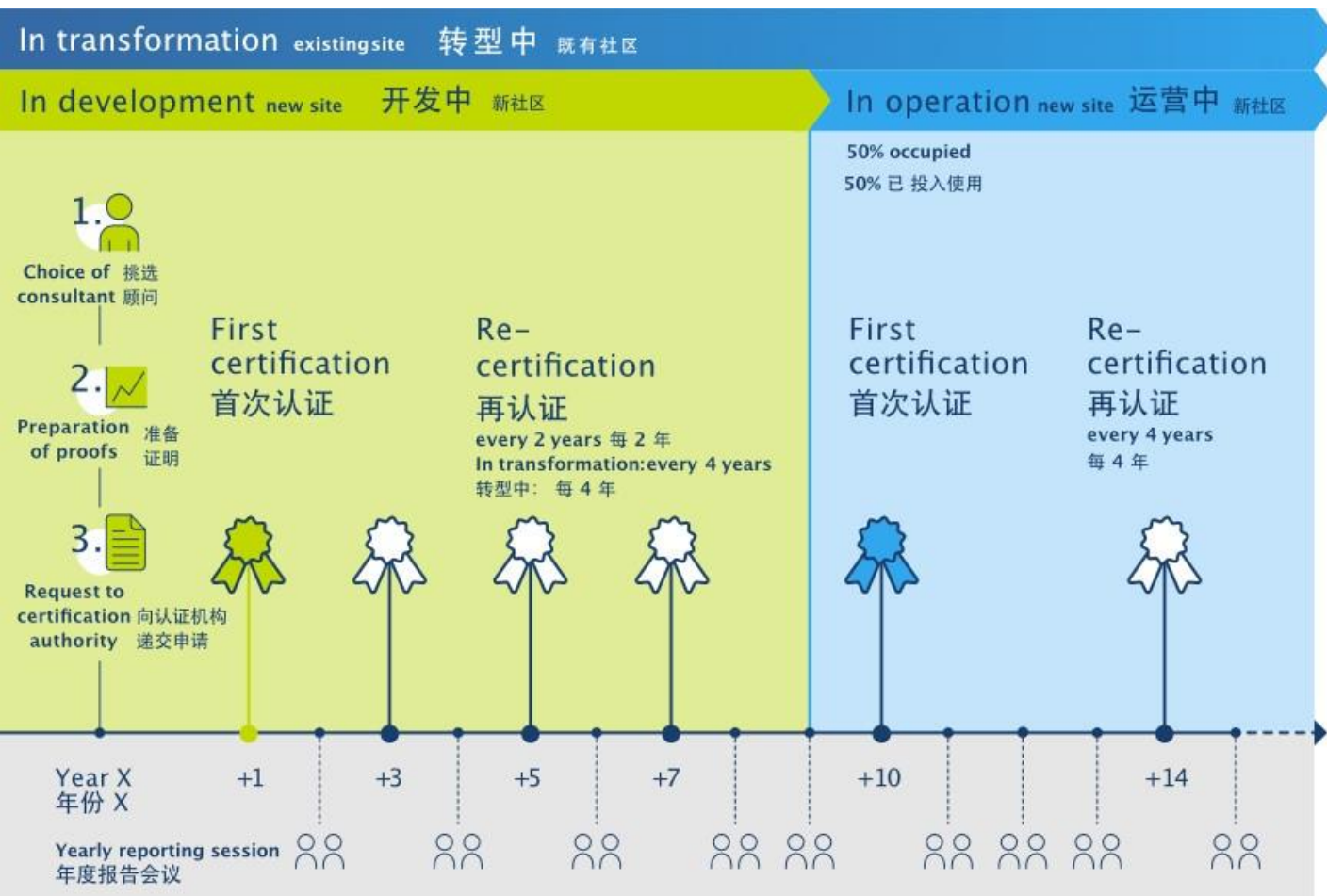
转型阶段（既有社区）

In Transformation (existing Neighbourhoods)

可认证所有不同特性的社区



CERTIFICATE FOR ALL
DIFFERENT SPECIFICATIONS



认证过程

CERTIFICATION PROCESS

定期认证

Regular certification (every 2 or 4 years)

对2000瓦社区认证顾问的需求

Need of accredited consultant 2000-Watt-District

规划阶段：模型数据

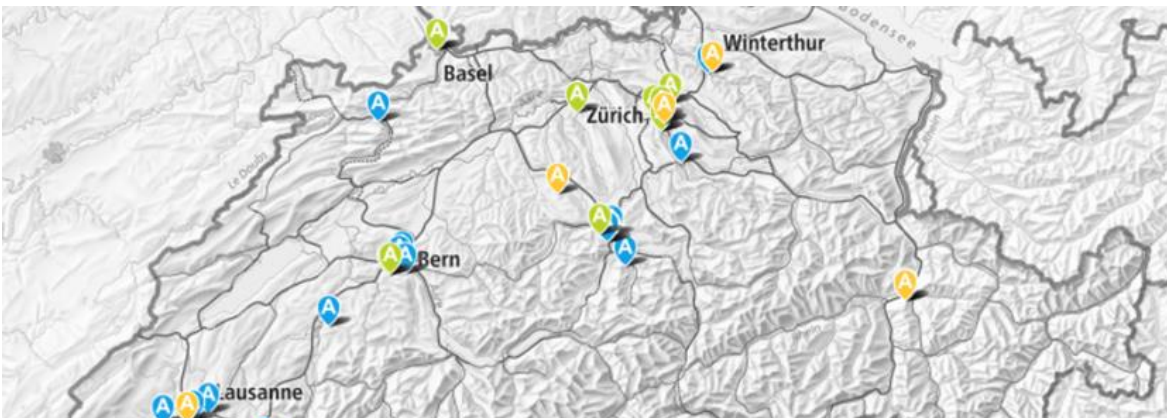
运营阶段：真实数据

Planning: Model Data, Operation: Real Data

简单的认证过程 是成功的关键



A SIMPLE CERTIFICATION PROCESS
IS THE KEY FOR SUCCESS



瑞士地图
Map of Switzerland 2021



2021 苏黎世保险公司园区
Quai Zurich Campus 2021



2019 de l'Etang" Vernier 小区
"Quartier de l'Etang" Vernier 2019



2020 库尔城的“Kleinbruggen”小区
“Kleinbruggen” Chur 2020

2000瓦社区遍布瑞士各地



GREAT DIFFUSION IN ALL
PARTS OF SWITZERLAND



对建筑师和工程师的可行性



FEASIBLE FOR ARCHITECTS
AND ENGINEERS



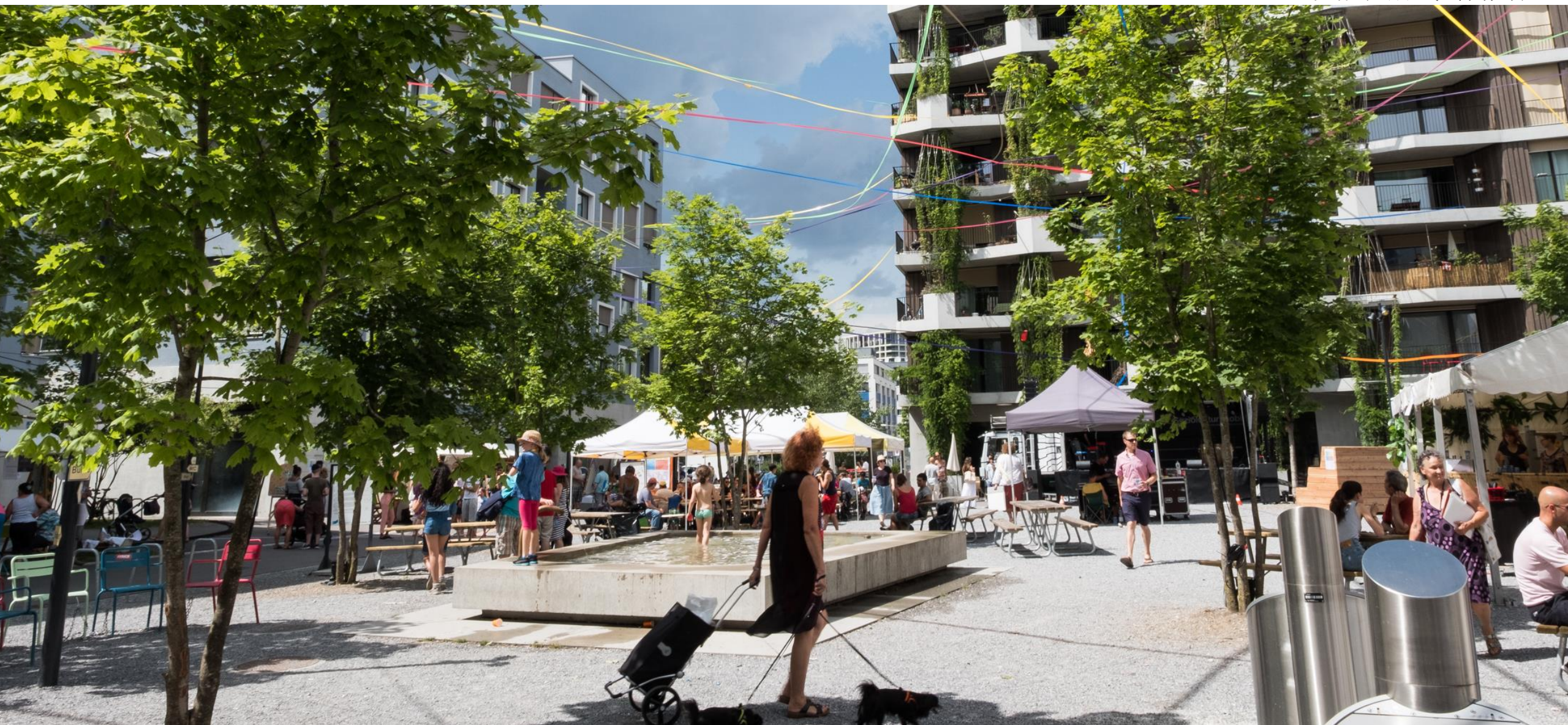
有助于获证的措施举例



EXAMPLES OF MEASURES FOR
OBTAINING THE CERTIFICATE



有助于获证的措施举例



总结语

CONCLUSIONS

减排/零碳 LOW/ZERO CARBON

1

2000瓦社区是低/零碳供能

减少日常交通和建材的碳排放是很不易的，因此用于运营的能必须（接近）100%来自可再生能源

2000-WATT-DISTRICT HAVE LOW/ZERO CARBON ENERGY SUPPLY:

It is hard to reduce the carbon impact from daily mobility as well as from the materials and therefore operational energy needs to be (almost) 100% renewable

低能耗 LOW ENERGY

2

2000瓦社区能耗很低

为了能总体实现低能耗，必须在运营和隐含能耗之间达到良好的平衡，这也意味着要找到最优的保温层厚度

2000-WATT-DISTRICTS HAVE A LOW ENERGY CONSUMPTION:

For achieving an overall low energy consumption, a good balance between operational and embodied energy must be targeted which means finding the optimal insulation thickness

生活质量 QUALITY OF LIFE

3

2000瓦社区是高质量生活的基础

通过提供不同服务和面向用户的基础设施，人们被连接在一起并成为社区的拥有人

2000-WATT-DISTRICTS FORM THE BASIS FOR A HIGH QUALITY OF LIFE:

By offering different services and a user-focused infrastructure, people get connected and they take ownership of the district

让您带回家的总结语

TAKE HOME MESSAGES

感谢您的关注

THANK YOU FOR YOUR ATTENTION