世界银行GEF7中国绿色与碳中和城市项目-

碳达峰碳中和路线图、绿色金融研究与试点

（招标编号：CD-CS4）

一、 更正内容：

招标文件条款号	原内容	更正后内容
开标时间	2024年2月28日上午10点00分	2024年3月13日上午10点00分

二、 监督部门

本招标项目的监督部门为成都市发展与改革委员会。

三、 联系方式

借款人项目执行机构：成都市政府投资项目评审中心

地　　址：成都市青羊区少城路27号，少城大厦6楼

联 系 人：宋婷婷

电　　话：028-86261789

电子邮件：cdpszx3@163.com

项目代理机构：中化建国际招标有限责任公司

地　　址： 北京市东城区东直门外小街6号海油大厦4层

联 系 人： 何立奇

电　　话： 010-84524331

电子邮件： helq5@cncccitc.com.cn

借款人项目执行机构或代理机构主要负责人（项目负责人）：

（签名）

借款人项目执行机构或代理机构：_____（盖章）

意向书征询函

（咨询服务——QCBS（基于质量和费用的选择））

中华人民共和国

世界银行GEF7中国绿色与碳中和城市项目

招标编号：P173316

任务名称：碳达峰碳中和路线图、绿色金融研究与试点

合同号：CD-CS4

经招标人确认，且获得世界银行的不反对意见，本项目开标时间由2024年2月28日上午10点00分延长至2024年3月13日上午10点00分，其余内容不变，请各位投标人以以下内容为准。

在原截止时间前已提交意向书的咨询顾问可以提供新意向书替换原意向书，若咨询顾问选择不替换，后续将以原意向书作为评审依据。

成都市政府投资项目评审中心作为执行机构，使用世行赠款以开展世界银行GEF7中国绿色与碳中和城市项目，并计划将部分赠款用于咨询服务。

该项目主要应对经济发展与减排降碳挑战，制定成都市碳中和路线图并为成都市的绿色发展模式提出建议，探索新的绿色金融模式，包含三个子项目活动：

(1) 针对成都市人口增长较多、经济发展较快、人均碳排放量较低、能源结构较为清洁等特征，立足统筹处理好发展和减碳之间的矛盾，破解较低碳排放条件下持续降碳的难题，制定碳达峰碳中和路线图；

(2) 分析私营部门不同类别的绿色项目、收入来源和商业模式，梳理绿色金融主要产品和路径；

(3) 根据不同项目特征，筛选匹配适当的融资模式，在大熊猫国家公园、绿色低碳产业园区（产业功能区）、城市更新改造等区域，开展绿色融资模式试点；

该项目将于2026年完成。

有兴趣的咨询顾问可以从中国招标投标公共服务平台-世行专区获得更多关于《任务大纲》的信息，2024年2月6日至2024年3月13日期间，从网上免费下载《任务大纲》。澄清回复或补遗文件将上传到中国招标投标公共服务平台-世行专区系统，请投标咨询公司时刻关注系统，招标人或招标代理不对投标咨询公司是否看到澄清回复或补遗文件负责。

成都市政府投资项目评审中心现邀请合格的咨询顾问（“顾问”）表明其对提供此项咨询服务的兴趣。

有兴趣的顾问应提供信息，证明他们具有执行服务所需的资格和相关经验。短名单资格预审标准为：

咨询顾问应具备：

1）咨询机构应在绿色低碳、绿色金融、项目投融资等方面拥有10年以上和广泛的专业知识和经验；

2）咨询机构需要具备有在中国的项目经验，具有在四川实施类似项目的优先。

3）具备相关的海外项目经验。

4）需要有较强的项目协调和管理能力，包括高质量的数据评估和报告制作。

咨询顾问提交的意向书时需要同时提供承诺函，承诺提供的一切资料都是真实、有效、合法的。

有意向的顾问应注意《世界银行投资项目贷款(IPF)借款人采购规则》（《采购规则》）（2016年7月版；2017年11月和2018年8月修订）第三章3.14、3.16和3.17条款中的规定，其中阐明了世界银行的利益冲突政策。此外，请参阅与该项目利益冲突相关的具体信息：《采购规则》第3.17条款下与该项目利益冲突相关的信息。

该项目将根据《采购规则》中规定的QCBS方法选择顾问。

关于报名及其他信息，可以在工作日的上午10:00至下午17:00联系中化建国际招标有限责任公司，联系人：何立奇，电话：010-84524331。

任何对招标过程或授予合同的疑问或者投诉应以书面形式发送给业主，其电子邮箱为cdpszx3@163.com，同时抄送给招标代理机构，其电子邮箱为helq5@cncccitc.com.cn。并可以把向业主提出疑问或者投诉的函电抄送给成都市发展和改革委员会，其投诉渠道详见成都市发展和改革委员会官方网站。

咨询顾问需在2024年3月13日上午10:00之前递交纸质中英文意向书正本各1份，中文副本4份，同时将电子版意向书发送至业主邮箱，并抄送给招标代理机构。

咨询顾问可以选择采用邮寄或亲自递交的方式递交意向书。

1）若采用邮寄的方式，请确保在开标前一日（2024年3月12号）下午17:00前请邮寄至以下地址：成都市政府投资项目评审中心，收件人：宋婷婷，地址：成都市青羊区少城路27号，少城大厦6楼，邮编：610000，电话：028-86261789，电子邮箱：cdpszx3@163.com

2）若采用亲自递交的方式，请确保在开标当日（2024年3月13号）上午10:00前递交至以下地址：四川省成都市武侯区天府大道北段966号天府国际金融中心7号楼，成都市公共资源交易中心。(递送前需与评审中心确认具体递交时间)。

中化建国际招标有限责任公司

2024年2月28日

Global Environment Facility

全球环境基金

China Sustainable Cities Integrated Approach Pilot

中国可持续城市综合方式试点

Terms of Reference (TOR)

任务大纲

Research and Piloting for Carbon Neutrality Roadmap and Green Finance

碳达峰碳中和路线图、绿色金融研究与试点

Ref NO. P173316

参考编号：P173316

Contract NO.:CD-CS4

合同编号：CD-CS4

1. 简介 Introduction

世界银行GEF7（全球环境基金第7期项目）在中国共确定3个试点区域，分别为宁波、成都和重庆。GEF7中国绿色和碳中和城市项目（暨中国可持续城市项目）目的是通过全球环境基金的赠款计划实现构建城市绿色和低碳战略规划系统的综合解决方案。

The World Bank's GEF7 (Global Environment Facility Phase 7) has identified three pilot areas in China, namely Ningbo, Chengdu and Chongqing. The GEF7 China Green and Carbon Neutral Cities Project (China Sustainable Cities Project) aims to implement integrated solutions for building green and low-carbon strategic planning systems for cities through the GEF grant program.

GEF7总体框架分为：以促进生态和生物多样性保护和碳中和为重点加强高质量发展框架；支持生物多样性和气候变化的综合解决方案—为“自然”和碳中和进行规划与投资；支持知识共享、能力建设和项目管理”三大板块。在成都项目的执行计划中，“成都市碳达峰碳中和路线图”和“成都市绿色金融指导建议和模式试点”是第二类目中的两个具体子项。

The GEF7 framework is divided into: Strengthening the quality development framework with a focus on promoting ecology and biodiversity conservation and carbon neutrality; Integrated solutions that support biodiversity and climate change - planning and investing in "nature" and carbon neutrality; Support knowledge sharing,

capacity building and project management. In the implementation plan of the Chengdu project, "Chengdu Carbon Peak Carbon neutral roadmap" and "Chengdu Green Finance Guidance and Model Pilot" are two specific sub-items in the second category.

该项目是GEF-7中国绿色碳中和城市项目的组成项目。项目名称为**“碳达峰碳中和路线图、绿色金融研究及试点”**。该项目主要应对经济发展与减排降碳挑战，制定成都市碳中和路线图并为成都市的绿色发展模式提出建议，探索新的绿色金融模式，包含三个子项目活动：

The project is part of the GEF-7 China Green Carbon Neutral City Project. The title of the project is **"Carbon Peak Carbon Neutral Roadmap, Green Finance Research and Pilot"**. The project mainly addresses the challenges of economic development and carbon reduction, develops a carbon neutral road map for Chengdu, proposes a green development model for Chengdu, and explores a new green finance model. It consists of three sub-project activities:

子项1： 针对成都市人口增长较多、经济发展较快、人均碳排放量较低、能源结构较为清洁等特征，立足统筹处理好发展和减碳之间的矛盾，破解较低碳排放条件下持续降碳的难题，制定碳达峰碳中和路线图；

In view of the characteristics of Chengdu, such as large population growth, rapid economic development, low per capita carbon emission and relatively clean energy structure, the contradiction between development and carbon reduction should be properly handled based on overall planning, the problem of continuous carbon reduction under the condition of low carbon emission should be solved, and the roadmap for carbon peak carbon neutrality should be formulated.

子项2： 分析私营部门不同类别的绿色项目、收入来源和商业模式，梳理绿色金融主要产品和路径；

Analyze different types of green projects, revenue sources and business models in the private sector, and sort out the main products and paths of green finance;

子项3： 根据不同项目特征，筛选匹配适当的融资模式，在大熊猫国家公园、绿色低碳产业园区（产业功能区）、城市更新改造等区域，开展绿色融资模式试点；

Select and match appropriate financing models according to the characteristics of different projects, and carry out pilot green financing models in Giant Panda National Park, green and low-carbon industrial parks (industrial functional zones), urban renewal and other areas;

子项4： 成都市碳达峰碳中和路线图、绿色金融研究及试点（合同号CD-CS4）的主要任务是：1）制定成都市碳达峰碳中和路线图；2）成都市绿色金融指导建议和模式试点。咨询单位的选聘将按照世界银行投资项目贷款（IPF）借款人采购规则（2016年7月版）“基于质量和费用的选择（QCBS）”方式进行。Chengdu Carbon Peak Carbon Neutral Roadmap, Green Finance research and pilot (Contract No. CD-CS4) The main tasks are: 1) to develop Chengdu carbon peak carbon neutral roadmap; 2) Chengdu green finance guidance and model pilot. The selection of consultants will be conducted in accordance with the Quality and Fee Based Selection (QCBS) of the World Bank's Procurement Rules for IPF Borrowers (July 2016 edition).

本项目的执行机构是成都市政府投资项目评审中心。该项目将于2026年完成。The executing agency of this project is Chengdu Government Investment Project Evaluation Center. The project will be completed by 2026.

1.1. 总体目标Overall Objectives

该项目的总体目标是将生物多样性保护纳入成都和成都都市圈的城市发展中，并为其制定碳中和的方向和路径。项目支持全球环境基金的两个重点领城，即生物多样性和气候变化，以实现全球环境效益。该项目部分进行两个层面的整合：横向整合展示了气侯变化和生物多样性综合解决方案的共同利益和损失；纵向整合促进了市和县级的政策制定和执行。这一目标的实现将通过在第十四个五年规划绩效评估中使用生态保护和低碳发展指标的城市数量来衡量。

The overall objective of the project is to integrate biodiversity conservation into the urban development of Chengdu and the Chengdu metropolitan area, and to chart a direction and path towards carbon neutrality. The project supports two GEF priorities, biodiversity and climate change, to achieve global environmental benefits. The project part integrates on two levels: the horizontal integration demonstrates the common benefits and losses of integrated solutions for climate change and biodiversity; Vertical integration facilitates policy formulation and implementation at the city and county levels. The achievement of this goal will be measured by the number of cities using ecological protection and low-carbon development indicators in the performance evaluation of the 14th Five-Year Plan.

1.2. 本项目的目的Purpose of this Project

该项目的具体目标是结合成都实际研究实现碳达峰碳中和的政策路径、技术路径，支持编制实施成都碳达峰碳中和年度行动计划，使成都“双碳”目标实现更具有可操作性、可执行性。并且通过对绿色金融模式的探索，有助于政府形成不同融资模式的适用性指南，吸引撬动更多社会资本参与公园城市生态环境建设。该项目也通过将成都市“双碳”目标与绿色金融手段相结合，通过对绿色金融方式的探索，促进成都市达成“双碳”目标。The specific goal of the project is to study the policy path and technical path to achieve carbon peaking carbon neutrality based on the actual situation in Chengdu, support the preparation and implementation of the annual action plan for carbon peaking carbon neutrality in Chengdu, and make the realization of the "double carbon" goal in Chengdu more operable and enforceable. And through the exploration of green finance model, it will help the government to form the applicability guide of different financing models and attract more social capital to participate in the construction of urban ecological environment in parks. The project also combines Chengdu's "double carbon" goal with green finance means, and promotes Chengdu's "double carbon" goal through the exploration of green finance methods.

1.3. 部门和机构背景 Sectoral and Institutional Background

成都在实施国家的“双碳”目标方面至关重要：成都是国家低碳城市试点，依托四川清洁能源大省优势，在实现碳达峰碳中和上具有较好的基础条件，全市人均碳排、单位GDP碳排处于同类城市较低水平，“十三五”时期，全市单位GDP能耗、单位GDP碳排放分别累计降低14.24%、20.96%。市委市政府坚决落实党中央国务院、省委省政府关于碳达峰碳中和的重大决策部署，市委十三届

十次全会审议通过《关于以实现碳达峰碳中和目标为引领优化空间产业交通能源结构促进城市绿色低碳发展的决定》，成为引领全市“双碳”工作的纲领性文件。**Chengdu is crucial in implementing the country's "dual carbon" goal:** Chengdu is a national pilot low-carbon city, relying on the advantages of Sichuan's clean energy province, in the realization of carbon peak carbon neutrality has a good basic conditions, the city's per capita carbon emissions, per unit GDP carbon emissions at the lower level of similar cities, "13th Five-Year" period, the city's per unit GDP energy consumption and per unit GDP carbon emissions have been reduced by 14.24% and 20.96%. Municipal Party Committee and municipal government resolutely implement the Central Committee of The State Council, the provincial Party Committee and the provincial government on the carbon peak carbon neutral major decision-making deployment, the tenth plenary session of the 13th session of the Municipal Party Committee reviewed and adopted the "Decision on the realization of carbon peak carbon neutral goal to lead the optimization of space industry transportation energy structure to promote green low-carbon development of the city", which has become a programed document leading the city's "double carbon" work.

但是成都也面临着平衡城市发展、经济增长和减污降碳的多重压力。成都经济规模、城镇化率、人口总量、机动车保有量都将持续增长，能源消费特别是电力消费将保持刚性增长，二氧化碳排放总量控制难度加大；人均碳排放、单位GDP碳排放在全国同类城市中较低，存量调整空间有限，进一步节能降碳的空间在减小、边际成本在增加。But Chengdu is also facing multiple pressures to balance urban development, economic growth and carbon reduction. Chengdu's economic scale, urbanization rate, total population and vehicle ownership will continue to grow, energy consumption, especially electricity consumption, will maintain a rigid growth, and it will be more difficult to control total carbon dioxide emissions. Carbon emissions per capita and carbon emissions per unit of GDP are relatively low among similar cities in China, and the space for stock adjustment is limited. The space for further energy conservation and carbon reduction is decreasing, and the marginal cost is increasing.

许多绿色低碳项目具有回报时间较长，绿色资产变现能力不足的特点，在一定程度上存在融资难的现象。绿色金融重点支持绿色低碳发展项目，可降低各主体绿色低碳转型的融资成本，促进项目落地。成都市正在探索构建实用性和操作性强的地方绿色金融标准，争创国家绿色金融改革创新试验区。Many green and low-carbon projects have the characteristics of long return time and insufficient realization ability of green assets, and financing is difficult to a certain

extent. Green finance focuses on supporting green and low-carbon development projects, which can reduce the financing costs of green and low-carbon transformation of various entities and promote the implementation of projects. Chengdu is exploring the construction of practical and operational local green finance standards, striving to become a national green finance reform and innovation pilot zone.

1.4. 背景城市-成都Background city - Chengdu

成都是四川省省会，全国15个副省级城市之一。截至2022年，成都市辖锦江、青羊、金牛、武侯、成华、龙泉驿、青白江、新都、温江、双流、郫都、新津12个区，简阳、都江堰、彭州、邛崃、崇州5个县级市，金堂、大邑、蒲江3个县。另外，成都市有国家级自主创新示范区——成都高新技术产业开发区、国家级经济技术开发区——成都经济技术开发区、国家级新区——四川天府新区成都直管区（2014年10月2日被国务院认定为国家级新区）；2020年4月28日，四川省人民政府同意设立成都东部新区。

Chengdu is the capital of Sichuan Province and one of the 15 sub-provincial cities in China. By 2022, Chengdu has jurisdiction over 12 districts: Jinjiang, Qingyang, Jinniu, Wuhou, Chenghua, Longquanyi, Qingbaijiang, Xindu, Wenjiang, Shuangliu, 郫, Xinjin, 5 county-level cities: Jianyang, Dujiangyan, Pengzhou, Qionglai and Chongzhou, and 3 counties: Jintang, Dayi and Pujiang. In addition, Chengdu has a state-level independent innovation demonstration zone - Chengdu High-tech Industrial Development Zone, a state-level economic and technological development zone - Chengdu Economic and Technological Development Zone, a state-level new zone - Sichuan Tianfu New District Chengdu Direct Administration Zone (October 2, 2014 was recognized by The State Council as a state-level new zone); On April 28, 2020, the Sichuan Provincial People's Government agreed to establish the Eastern New District of Chengdu.

2010-
2020年间，成都市常住人口由1511.88万增至2093.78万，净增长582万人，增量仅次于深圳、广州，是全国仅有的四个2000万级人口大都市之一。截至2022年末，常住人口2126.8万人，比上年末增加7.6万人，增长0.4%；其中，城镇常住人口1699.1万人，常住人口城镇化率79.9%，比上年末提高0.4个百分点。年末户籍人口1571.6万人，比上年末增加15.4万人，户籍人口城镇化率68.8%。成都市面积为14,335平方公里，不到四川省的3%，却容纳了全省8372万人口的25.4%，对全省GDP的贡献率为37%。2022年成都市实现地区生产总值为20817.5亿元，

居全国城市第七，按可比价格计算，比上年增长2.8%。分产业看，第一产业、第二产业和第三产业增加值分别为588.4亿元、6404.1亿元和13825.0亿元，三次产业结构为2.8：30.8：66.4。按常住人口计算，人均地区生产总值98149元，增长2.0%。在全球化与世界城市（GaWC）研究网络最新发布的《世界城市名册2020》中，成都入选Beta+级，位列全球第59名。成都努力成为一个可持续发展的城市。在过去的几年里，市委、市政府印发实施了若干关于绿色和可持续城市发展的主要政策指南。《中共成都市委关于推进绿色发展建设美丽中国典范城市的实施意见》（2016年）重点关注城市化的质量，而不是速度。From 2010 to 2020, Chengdu's permanent population increased from 15.118 million to 20.937 million, a net increase of 5.82 million, second only to Shenzhen and Guangzhou, and one of the only four metropolises with a population of 20 million in China. By the end of 2022, the permanent population was 21.268 million, an increase of 76,000 or 0.4% over the previous year; Among them, 16,991 million permanent urban residents, or 79.9% of the permanent urban population, an increase of 0.4 percentage points over the end of the previous year. By the end of the year, the registered population was 15.716 million, an increase of 154,000 over the previous year, and the urbanization rate of the registered population was 68.8%. Chengdu covers an area of 14,335 square kilometers, less than 3% of Sichuan Province, but it houses 25.4% of the province's 83.72 million population and contributes 37% to the province's GDP. In 2022, Chengdu achieved a gross regional product of 2,081.75 billion yuan, ranking seventh among cities in China, with an increase of 2.8% over the previous year in terms of comparable prices. By industry, the added value of the primary industry, the secondary industry and the tertiary industry was 58.84 billion yuan, 640.41 billion yuan and 1382.50 billion yuan, respectively, and the three industrial structure was 2.8：30.8：66.4. Based on the permanent population, the per capita GDP was $98,149, an increase of 2.0%. In the latest "World Cities List 2020" released by the Globalization and World Cities (GaWC) research network, Chengdu has been selected to Beta+ level, ranking 59th in the world. Chengdu strives to become a sustainable city. In the past few years, the municipal Party Committee and the municipal government have issued and implemented several major policy guidelines on green and sustainable urban development. The Implementation Opinions of the CPC Chengdu Municipal Committee on Promoting Green Development and Building a Beautiful Chinese Model City (2016) focuses on the quality of urbanization, not the speed.

A. 已有的绿色和低碳协议Existing green and low-carbon agreements

表1：已有的国家和城市层面政策

Table 1: Existing national and city-level policies

级别	
国家级	规划提出，在有条件的地区推进经济社会发展总体规划、城市规划、土地利用规划等
	规划提出要“以提高环境质量和以人为本为核心，以解决生态环境领域突出问题为重 境综合治理力度，加强生态保护和修复，积极应对全球气候变化”等几个方面来指导
	规划提出：“坚特节约资源和保护环境的基本国策，高举绿色发展旗帜，紧紧围绕资 厂、绿色园区、绿色供应链全面发展，建立健全工业绿色发展长效机制”。
	为落实《生物多样性公约》的规定，进一步加强中国生物多样 2030年）》，该计划提出了未来20年生物多样性保护的总体目标、战略任务和优先行 的信息和监测系统，协调生物多样性保护和可持续发展，以及加强对中国生物多样性
城市级别	新的空间规划体系将主体功能区划、土地利用规划、城乡规划和生态环境规划整合为
	到2035年，成都希望成为一个“公园城市"，因此它正在将绿色部分纳入其最新的城市 、实体城市、环境和人都完美和谐地共存的社会。 为了满足居民对美好生活的期望，重塑城市在新时期的竞争力，这样的公园城市的创
Rank	Policy content
National	The plan proposes to promote the integration of overall plans for economic and social develo
	The plan proposes to "focus on improving environmental quality and putting people first, f jointly promote the prosperity of the people, the prosperity of the country, and the beauty of development, strengthening comprehensive environmental management, strengthening ecolo
	The plan proposes: "The basic national policy of saving resources and protecting the enviro technology innovation, and guaranteed by the construction of regulations and standards syste factories, green parks, and green supply chains, and establish and improve long-term mechan
	In order to implement the provisions of the Convention on Biological Diversity, further stren units, has formulated the China Biodiversity Conservation Strategy and Action Plan (2011-20 nature reserves, identifying and planning for the conservation of wildlife species important conservation and sustainable development, and establishing a national network of conservatio
City	The new spatial planning system integrates main function zoning, land use planning, urban

	supervision of spatial planning. It is recognized as a time-space deployment for the developm
	By 2035, Chengdu wants to become a "park city," so it is incorporating a green component in basic shape in 2035. The concept of the Park city depicts a society in which industry, physica To meet residents' expectations for a better life and reshape the city's competitiveness in the n

B. 差距和挑战Gaps and challenges

许多核心挑战尚待解决Many core challenges remain to be addressed

1. 资源和环境的约束越来越紧。城市空间结构调整还需持续用力，人口和产业仍主要集中在中部平坝地区，成都市部分区域国土开发强度达86%、人口密度达到每平方公里1.4万人，与区域资源禀赋相协调的差异化协同发展格局有待加快构建。生态资源明显不足，以成都为例，人均森林面积仅为全国、全省平均水平的1/4、1/6，人均水资源量不到全国的1/4、全省的1/7，生态用水紧张，且水资源时空分布不均，使得资源承载能力瓶颈愈发凸显。未来成都都市圈人口将继续呈增长趋势，人口与资源和环境间的矛盾势必更加突出，生态功能保障基线、环境质量安全底线、自然资源利用上线将面临巨大压力。**1. The constraints of resources and environment are getting tighter.** The population and industries are still mainly concentrated in Pingba in the central part of the city. In some areas of Chengdu, the land development intensity has reached 86%, and the population density has reached 14,000 people per square kilometer. A differentiated and coordinated development pattern coordinated with regional resource endowments needs to be accelerated. Ecological resources are obviously insufficient. Taking Chengdu as an example, the per capita forest area is only 1/4 and 1/6 of the national and provincial average, and the per capita water resources are less than 1/4 of the national and 1/7 of the provincial average. The shortage of ecological water resources and the uneven distribution of water resources in time and space make the bottleneck of resource carrying capacity more prominent. In the future, the population of Chengdu metropolitan area will continue to increase, and the contradiction between population, resources and environment will become more prominent. The baseline of ecological function guarantee, the bottom line of environmental quality and safety, and the utilization of natural resources will face great pressure.

2.

产业绿色发展水平有待进一步提升。对绿色技术研发投入不足，支撑绿色低碳新产品、新技术、新模式的应用环境尚不完善，产业链、创新链融合协同发展

能力不强，绿色低碳技术产业化应用尚未成规模，技术应用成本较高。绿色清洁生产方式还未全面推广，工业产业存量调整难度加大，绿色低碳制造业总体规模偏小，面临工业发展不足、质量不高与减少工业碳排放的双重任务。绿色消费环境有待改善，生产性服务业发展不充分，传统服务业档次较低，绿色金融体系有待进一步健全。**2. The level of industrial green development needs to be further improved.** Investment in green technology research and development is insufficient, the application environment supporting green and low-carbon new products, new technologies and new models is not perfect, the industrial chain and innovation chain integration and coordinated development ability is not strong, the industrial application of green and low-carbon technology has not yet reached a scale, and the technology application cost is high. Green and clean production methods have not yet been fully promoted, the adjustment of industrial stocks has become more difficult, and the overall scale of green and low-carbon manufacturing is small, facing the dual tasks of insufficient industrial development, low quality and reducing industrial carbon emissions. The green consumption environment needs to be improved, the producer service industry is not fully developed, the traditional service industry is of low grade, and the green financial system needs to be further improved.

3.

环境污染问题复杂性增加。近年来，成德眉资四市下大力气坚决打好污染防治攻坚战，生态环境质量总体呈现稳中向好趋势，但生态环境保护的结构性、根源性、趋势性压力尚未根本缓解，生态环境质量从量变到质变的拐点尚未到来。大气污染防治方面，纵向看成效显著，但横向比形势依然严峻，成都空气质量在全国重点城市中排名靠后。水污染防治方面，水环境改善和水生态修复成效与目标要求还有差距，污水管网及处理设施运行维护水平有待提升，湿地保护修复力度有待加强。土壤污染防治仍处于起步阶段，存在污染成因复杂、治理技术不成熟的问题，农业面源污染防治还需加大力度。**3. The complexity of environmental pollution is increasing.** In recent years, the four cities of Chengde Meizi have made great efforts to resolutely fight the battle of pollution prevention and control, and the ecological environment quality has generally shown a stable and good trend, but the structural, root and trend pressures of ecological environment protection have not yet been fundamentally alleviated, and the inflection point of ecological environment quality from quantitative change to qualitative change has not yet arrived. In terms of air pollution prevention and control, the vertical effect is remarkable, but the horizontal situation is still grim, and Chengdu's air quality ranks low among key cities in the country. In terms of water pollution prevention and

control, there is still a gap between the improvement of the water environment and the effectiveness of water ecological restoration and the target requirements, the operation and maintenance level of sewage network and treatment facilities needs to be improved, and the protection and restoration of wetlands needs to be strengthened. The prevention and control of soil pollution is still in its infancy, and there are problems such as complex pollution causes and immature treatment technologies.

4.

体制机制创新力度还不够。可持续发展理念融入经济社会发展全过程的规划政策体系还需完善，碳达峰碳中和顶层设计有待加快建立健全，生态保护规划同经济发展和土地利用等规划有效衔接不够，“规建管”三位一体等模式还需强化。生态环境统计监测评价体系还需完善，绿色低碳发展指标体系还有待加快构建，智慧治理系统应用程度不够，个别区（市）县还存在生态环境监测体系覆盖不全、质量不佳、部门数据不通、智能化水平不高等问题，导致生态保护和环境治理举措不够精准。环境基础设施规划建设体系有待完善，基于自然的解决方案应用不足，用市场化办法增加环保投入、撬动社会资金等方面缺少创新性的举措，生态价值实现途径有待加快探索实践。**4. Institutional innovation is not enough.** The planning policy system that integrates the concept of sustainable development into the whole process of economic and social development needs to be improved, the top-level design of carbon to peak carbon neutrality needs to be established and improved, the effective connection between ecological protection planning and economic development and land use planning is not enough, and the trinity model of "regulation, construction and management" needs to be strengthened. The ecological environment statistical monitoring and evaluation system still needs to be improved, the green and low-carbon development indicator system needs to be accelerated, the application of the smart governance system is not enough, and individual districts (cities) and counties still have problems with incomplete coverage of the ecological environment monitoring system, poor quality, departmental data imperfection, and low intelligence level, resulting in inaccurate ecological protection and environmental governance measures. The environmental infrastructure planning and construction system needs to be improved, the application of nature-based solutions is insufficient, there is a lack of innovative measures in terms of increasing environmental protection investment through market-based methods and leveraging social funds, and ways to realize ecological value need to be explored and practiced at a faster pace.

5. **生态安全屏障功能亟待巩固和提升。**成都都市圈区域内分布有龙门山-岷山等多条断裂带，地震、山体滑坡、泥石流等地质灾害多发，龙门山地区受汶川大地震以及几次特大泥石流等地质灾害影响，生态植被仍未完全恢复。龙泉山脉生态系统功能较弱，封山育林、森林管护不足。岷江上游部分河流减脱水河道干枯，下游部分河流污染严重，河流生态系统完整性和安全性受到极大冲击。生物多样性底数不清。**5. The function of ecological safety barrier needs to be consolidated and improved.** There are several fault zones such as Long Men Mountain and Min Mountain in Chengdu metropolitan area, which are prone to geological disasters such as earthquakes, landslides and debris flows. Affected by the Wen Chuan earthquake and several extremely large debris flows, the ecological vegetation in Longmenshan area has not fully recovered. The ecosystem function of Long Quan Mountain is weak, and the forest management and protection are insufficient. Some of the upper reaches of the Min Jiang River are dry and some of the lower reaches are seriously polluted, which greatly impacts the integrity and safety of the river ecosystem. Biodiversity is uncountable.

6. **绿色低碳发展能力还有待进一步提升。**成都都市圈建设、成德眉资城市群同城化发展目前总体处于极核带动向协同建设转型的初级阶段，区域发展不平衡不充分，资源、环境、交通、产业基础等发展条件差异较大，生态环境质量、污染治理能力和水平与国际、国内先进都市圈相比差距较大，随着城市扩张、人类活动加剧，生态空间不断受到挤压，都市圈“大城市病”问题也日益凸显。**6. Capacity for green and low-carbon development needs to be further improved.** At present, the construction of Chengdu metropolitan area and the urban integration of Cheng-De-Mei-Zi urban agglomeration are in the initial stage of transformation from polar core to collaborative construction, with unbalanced and inadequate regional development, great differences in development conditions such as resources, environment, transportation and industrial base, and great gaps in ecological environment quality, pollution control ability and level compared with advanced international and domestic metropolitan areas. With the expansion of cities and the intensification of human activities, the ecological space is constantly squeezed, and the problem of "big city disease" in metropolitan areas is becoming increasingly prominent.

2. 工作范围：任务与产出Scope of work: Tasks and outputs

2.1.1. 研究目标Research objectives

围绕二十大提出的“协同推进降碳、减污、扩绿、增长”这一迫切需求，结合成都实际，研究实现碳达峰碳中和的系统性路径、重点项目和技术政策体系，以及与之相适应的绿色金融模式，使成都“双碳”目标实现更具有科学性、系统性和可操作性，并将成都经验在全国推广。

项目的主要活动和产出见表2。

Focusing on the urgent need of "coordinated promotion of carbon reduction, pollution reduction, green expansion and growth" proposed by the 20th National Congress, combined with the actual situation of Chengdu, we will study the systematic path, key projects and technical policy system to achieve carbon peak carbon neutrality, as well as the corresponding green finance model, so as to make the realization of "double carbon" goal in Chengdu more scientific, systematic and operational. And the experience of Chengdu will be promoted throughout the country.

The main activities and outputs of the project are shown in Table 2.

表2：项目活动和产出

子项	子项目活动	产出
2.支持生物多样性和气候变化的综合解决方案——为“自然”和碳中和进行规划与投资	2.1：为生态规划、城市生物多样性和碳中和路线图提供技术支撑 2.1.1成都市碳达峰碳中和路线图 针对成都市人口增长较多、经济发展较快、人均碳排放较低、能源结构较为清洁等特征，立足统筹处理好发展和减碳之间的矛盾，破解较低碳排下持续降碳的难题，制定碳达峰碳中和路线图	成都市碳达峰碳中和路线图的战略报告
	2.2：绿色基础设施与碳中和社区的示范与投资 2.2.3成都市绿色金融指导建议和模式试	成都市绿色金融模式指导建议

	点 • 分析不同类别的绿色项目、收入来源和商业模式，梳理绿色金融主要产品和路径。 • 根据不同项目特征，筛选匹配适当的融资模式，在大熊猫国家公园生态修复、产业园区（产业功能区）绿色低碳改造、城市更新改造等领域开展绿色融资模式试点。	

Table 2: Project Activities and Outputs

Sub-item	Subproject activity	outputs
2. Support integrated solutions for biodiversity and climate change - planning and investing in "nature" and carbon neutrality	2.1: Provide technical support for ecological planning, urban biodiversity and carbon neutrality roadmaps 2.1.1 Chengdu Carbon peak carbon neutral roadmap In view of the characteristics of Chengdu, such as large population growth, rapid economic development, low per capita carbon emission and relatively clean energy structure, the contradiction between development and carbon reduction should be properly handled based on overall planning, the problem of continuous carbon reduction under low carbon emission should be solved, and a roadmap for carbon peak carbon neutrality should be formulated	Chengdu Carbon peak carbon neutral road map strategy report
	2.2: Demonstration and investment in green infrastructure and carbon-neutral communities 2.2.3 Chengdu green finance guidance and model pilot · Analyze different types of green projects, revenue sources and business models, and sort out the main products and paths of green finance.	Chengdu green finance model guidance suggestions

	· Select and match appropriate financing models according to the characteristics of different projects, and carry out pilot green financing models in the fields of ecological restoration of Giant Panda National Park, green and low-carbon transformation of industrial parks (industrial functional areas), and urban renewal and transformation.	

2.1.2. 重点key points

本项目将帮助成都市制定碳中和路线图，并为成都市绿色金融新模式进行探索。在成都，这笔赠款将用于：The project will help Chengdu develop a carbon neutral roadmap and explore new models for green finance in the city. In Chengdu, the grant will be used to:

子项1： 针对成都市人口增长较多、经济发展较快、人均碳排放较低、能源结构较为清洁等特征，立足统筹处理好发展和减碳之间的矛盾，破解较低碳排水平条件下持续降碳的难题，制定碳达峰碳中和路线图； Sub-item 1: In view of the characteristics of Chengdu, such as large population growth, rapid economic development, low per capita carbon emission and relatively clean energy structure, the contradiction between development and carbon reduction should be properly handled based on overall planning, the problem of continuous carbon reduction under the condition of low carbon emission level should be solved, and the roadmap for carbon peak carbon neutrality should be formulated;

子项2： 分析不同类别的绿色项目、收入来源和商业模式，梳理绿色金融主要产品和路径； Analyze different types of green projects, revenue sources and business models, and sort out the main products and paths of green finance;

子项3： 根据不同项目特征，筛选匹配适当的融资模式，在大熊猫国家生态公园、绿色低碳功能区、城市更新改造等区域，开展绿色融资模式试点。 Select and match appropriate financing models according to the characteristics of different projects, and carry out

pilot green financing models in the Giant Panda National Ecological Park, green and low-carbon functional zones, urban renewal and transformation regions.

2.1.3. 任务Task

本任务将通过调研访谈、政策回顾性评价、模型构建、专家咨询等方式，研究制定《成都市碳达峰碳中和路线图的战略报告》和《成都市绿色金融模式指导建议》，科学指导成都以较低成本实现“双碳”目标。详细包括以下8个任务。This task will study and formulate " Chengdu Carbon peak carbon neutral road map strategy report" and " Chengdu green finance model guidance suggestions" by means of research interviews, policy retrospective evaluation, model construction, expert consultation, etc., to scientifically guide Chengdu to achieve the goal of "double carbon" at a lower cost. The details include the following eight tasks.

任务1：国内外城市低碳转型最佳实践案例与经验梳理。Task 1: Review of best practice cases and experience of urban low-carbon transition at home and abroad.

筛选和梳理对成都具有可比性和可借鉴性的国内外低碳发展案例：

1) 通过案例剖析，识别出政策和技术发展趋势、低碳转型的成功经验和关键启示。

2) 收集国内外城市\部门\区域绿色低碳发展数据，以进行对标分析。

3) 最佳实践案例不限于：

- 与成都可比的城市或区域
- 重点用能和碳排放部门：电力系统、产业、建筑、交通等
- 最佳政策机制创新案例

最佳技术研发和应用实例等Screening and sorting out domestic and foreign low-carbon development cases with comparability and reference for Chengdu:

4) Identify policy and technology development trends, successful experiences and key implications of low-carbon transition through case analysis.

5) Collect green and low-carbon development data of domestic and foreign cities/departments/regions for bench marking analysis.

6) Best practice cases are not limited to:

- Cities or regions comparable to Chengdu
- Key energy and carbon sectors: power systems, industry, buildings, transportation, etc
- Examples of best policy mechanism innovation
- Best technology development and application examples
-

2.1.4. 任务2：研究成都市“双碳”发展现状，识别相关的主要矛盾.

Task 2: Study the development status of "dual carbon" in Chengdu and identify the main contradictions.

1) 在资料收集基础上，制定成都市各部门调研计划，以掌握与成都双碳相关的数据资料以及实施过程中的痛点和需求；

2) 成都市社会经济发展现状分析，掌握成都市人口、经济发展阶段以及产业特点等对成都市碳排放产生重要影响的因素；

3) 成都市能源消费和碳排放现状分析，包括但不限于：人均碳排放和碳排放总量历史趋势、重点排放领域和重点排放行业特点、影响碳减排的关键因素识别等；

4) 重点聚焦空间、产业、交通和能源结构调整，对成都市既有“双碳”相关政策进行回顾，包括：

- 判断政策实施效果；
- 梳理分析政策导向；
- 不同领域的重点试点示范区域等；

5) 国内外对标分析，识别和判断成都市实现“双碳”目标和绿色发展的主要矛盾和重点方向，包括但不限于：

- 影响碳达峰碳中和路线实现的重点领域、驱动因子和主要问题；
- 政策推进较缓慢的领域及原因分析；
- 分部门分地区重点减碳方向、与待加强的技术和政策等。

1) On the basis of data collection, formulate research plans for various departments in Chengdu, so as to grasp the data related to Chengdu dual carbon and the pain points and needs in the implementation process;

2) Analyze the current situation of social and economic development in Chengdu, and grasp the factors that have an important impact on carbon emissions in

Chengdu, such as population, economic development stage and industrial characteristics;

3)； Analysis of the current situation of energy consumption and carbon emissions in Chengdu, including but not limited to: historical trends of per capita carbon emissions and total carbon emissions, characteristics of key emission areas and industries, identification of key factors affecting carbon emission reduction, etc.;

4) Focus on the adjustment of space, industry, transportation and energy structure, and review the existing "dual carbon" related policies in Chengdu, including:

- Judge the effect of policy implementation;
- Sorting out and analyzing policy orientation;
- Key pilot demonstration areas in different fields;

5) Benchmarking at home and abroad to identify and judge the main contradictions and key directions for Chengdu to achieve the "dual carbon" goal and green development, including but not limited to:

- Key areas, driving factors and major issues affecting the realization of the carbon peak carbon neutral route;
- Analysis of the areas where policy advancement is slow and the reasons for it;
- Key sectoral and regional carbon reduction directions, and technologies and policies to be strengthened.

2.1.5. 任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径。**Build a scenario analysis model of carbon emission in Chengdu, and propose a low-carbon transformation path compatible with the goal of carbon neutrality.**

1) 构建碳排放情景分析模型，模拟不同措施情景下的碳排放趋势，筛选出可以实现碳中和目标的情景。

- 情景分析应把握城市总体和分部门、碳达峰和碳中和之间的协同，进行系统性分析。避免某一系统的减排措施增加了另一系统的碳排放或减碳成本，或者由于前期目标设定过低，增加碳中和目标实现的难度和成本。
- 自上而下和自上而下相结合的能源碳排放情景分析。通过自上而下的分析方法，把握成都市总体碳排放趋势，初步识别成都市实现碳中和目标的难度和关键宏观指标要求；通过自下而上的分析方法，分别对重点碳排放部门（包

括工业、建筑、交通和发电部门）进行能源消费与二氧化碳排放进行模拟分析，以确定如何通过分部门甚至分地区的努力以实现双碳总目标。需设定多个情景，包括政策如常情景、碳达峰情景和碳中和情景等，其中需要至少2条既满足碳达峰又满足碳中和的情景。

2) 根据成都市政策规划和国内外发展趋势，梳理出成都市实现“双碳”目标的措施清单，构建各类碳减排措施组合情景：

- 减碳措施需按照实施的可能性、可行性、必要性和前瞻性进行优先序分类，以便构建有层次的政策组合，进行情景设定。
- 需设定多个情景，以便在多条能满足碳中和目标实现的路径中筛选出更稳健、更具有弹性的碳减排战略，情景设置包括但不限于：人口增速、GDP增速、产业结构调整、各部门技术渗透率、政策机制创新等。

1) Build a carbon emission scenario analysis model, simulate the carbon emission trend under different measures, and screen out scenarios that can achieve the goal of carbon neutrality.

- Scenario analysis should take into account synergies between cities as a whole and sub-sectors, carbon peaking and carbon neutrality, and conduct systematic analysis. Avoiding emissions reductions in one system increases the cost of carbon emissions or reductions in another system, or increases the difficulty and cost of achieving carbon neutrality goals because early targets are set too low.
- A combination of top-down and top-down energy carbon emission scenario analysis. Through top-down analysis method, grasp the overall carbon emission trend of Chengdu, and preliminarily identify the difficulty and key macro index requirements of achieving carbon neutrality in Chengdu; Through bottom-up analysis, energy consumption and CO_2 emissions of key carbon emitting sectors (including industry, buildings, transport and power generation) are simulated to determine how to achieve the overall dual-carbon target through sectoral and even regional efforts. Multiple scenarios should be set, including the policy as usual scenario, carbon peaking scenario and carbon neutral scenario, among which at least two scenarios should meet both carbon peaking and carbon neutrality.

2) According to the policy planning of Chengdu and the development trend at home and abroad, sort out the list of measures to achieve the goal of "dual carbon" in Chengdu, and construct a combination scenario of various carbon emission reduction measures:

- Carbon reduction measures need to be prioritized according to their likelihood, feasibility, necessity and foresight to build a layered policy mix and scenario setting.
- Multiple scenarios need to be set in order to select more robust and flexible carbon reduction strategies from multiple paths that can meet the goal of carbon neutrality, including but not limited to: population growth, GDP growth, industrial structure adjustment, technology penetration of various sectors, policy mechanism innovation, etc.

2.1.6. 任务4：“双碳”目标实现的成本效益分析

1) 任务至少应对两条路径进行成本效益分析；

2) 成本效益分析应涵盖重点碳排放部门，包括：工业、建筑、交通和电力系统等；

3) 综合考虑可行性、经济性、气候韧性等因素，识别出较优路径。

Task 4: Cost-benefit analysis of the implementation of the "dual carbon" target

1) The task should conduct cost-benefit analysis for at least two paths;

2) Cost-benefit analysis should cover key carbon emitting sectors, including: industry, buildings, transport and power systems;

3) Consider feasibility, economy, climate resilience and other factors to identify the optimal path.

2.1.7. 任务5：目标分解，重大项目筛选，编制双碳路线图

1) 提炼出较优碳中和情景下的主要目标和关键指标：

- 目标包括：总目标、分部门目标和分区域目标；
- 主要目标用于考核政策实施效果，如：能耗双控目标、碳排放双控目标、非化石能耗占比等；
- 关键指标指达到主要目标需要完成的分项指标，这些指标应与成都市既有统计体系相适应，是各部门熟悉的指标，便于落实推进具体工作，如：不同类型车辆中电动汽车和氢燃料汽车占比（数量）、公交分担率、每年既有建筑改造面积、超低能耗建筑面积、新增光伏装机容量、不同行业产值占比及能效提高目标、CCUS安装等。

2) 筛选出与目标相关联的重大项目类别：

- 项目应覆盖不同部门和不同区域；

- 项筛选时应考虑减碳贡献率、技术成熟度、推进时间节点、示范效应等；
- 项目需进行简单地投资估算；
- 这些项目将是后续进行绿色金融模式试点的重点研究对象。

- 编制碳中和路线图，提交产出1：基于成都市重点部门和重点行业碳排放的现状及发展趋势，编制《成都市碳达峰碳中和路线图战略报告》。路线图应包括但不限于：
- 成都市及各部门碳排放趋势；

能源、工业、交通运输、城乡建设、水利、农业农村、林业草原、金融、公共机构、居民生活等重点行业和领域（简称重点行业和领域）实现碳中和和目标技术路径；

- 重点行业和领域实现碳中和目标的成本效益分析；
- 重点行业和领域分阶段主要目标和关键指标；
- 成都市及各部门需配套的政策机制创新等；
- 碳中和路线图应兼顾可操作性和前瞻性。

Task 5: Target decomposition, major project screening, preparation of dual-carbon roadmap

3) Extract the main objectives and key indicators under the optimal carbon neutral scenario:

- Objectives include: general objectives, sub-sectoral objectives and sub-regional objectives;
- Main targets are used to assess the effect of policy implementation, such as: energy consumption dual control targets, carbon emission dual control targets, non-fossil energy consumption ratio, etc.;
- Key indicators refer to the sub-indicators that need to be completed to achieve the main objectives. These indicators should be compatible with the existing statistical system of Chengdu and are familiar to all departments to facilitate the implementation and promotion of specific work, such as: The proportion (number) of electric vehicles and hydrogen fuel vehicles in different types of vehicles, public transport sharing rate, annual existing building renovation area, ultra-low energy consumption building area, new photovoltaic installed capacity, the proportion of output value of different industries and energy efficiency improvement targets, CCUS installation, etc.

4) Select the categories of major projects associated with the objectives:

- The project should cover different departments and different regions;
- Consideration should be given to carbon reduction contribution rate, technology maturity, promotion time node, demonstration effect, etc.;
- The project requires a simple investment estimate;
- These projects will be the key research objects for the subsequent pilot of the green finance model.

- Preparation of carbon neutrality roadmap and submission of output 1: Based on the status quo and development trend of carbon emissions in key sectors and industries of Chengdu, preparation of "Chengdu Carbon Peak Carbon Neutrality Roadmap Strategy Report". The roadmap shall include, but not be limited to:
- Carbon emission trends in Chengdu and various sectors;

Key industries and areas such as energy, industry, transportation, urban and rural construction, water conservancy, agriculture and rural areas, forestry and grassland, finance, public institutions, and people's life (referred to as key industries and areas) to achieve carbon neutrality and target technology paths;

- Cost-benefit analysis of key sectors and sectors to achieve carbon neutrality;
- Major objectives and key indicators for key industries and fields;
- Innovation of policy mechanisms required by Chengdu and various departments;
- Carbon neutrality roadmaps should be both actionable and forward-looking.

2.2. 任务6：分析绿色项目的收入来源和商业模式

绿色项目业主通常面临信用水平低，难以从银行等传统渠道获得足够融资，且绿色项目的正外部性强，回报周期长，项目风险高，商业化投资机构关注度偏低。

绿色项目评估需要从项目所在行业转型、收入来源、商业模式和技术应用等方面，综合考虑碳排放水平与发展进程，识别成都市绿色转型项目类别与重点，分析其风险要点，并形成促进项目商业可持续的政策与机制支持建议。

1） 不同区域/行业/主体的转型路径有所差异，在绿色项目分析时，需要重点考虑以下因素：

成都市内产业的分布以及对成都市低碳转型的贡献水平、更广范围的行业能效标杆水平和基准水平、具备一定前瞻性并对成都市“十五五”、“十六五”期间工作起到牵引和指导作用。

2)　　私营部门绿色项目包括但不限于以下类别：

- 可再生能源及配套。包括光伏、风电、充换电和储能等；
- 节能降碳改造。包括工业节能改造、交通运输载具电气化等；
- 污染治理。包括水、大气和土壤污染治理及环境综合整治等；

资源循环利用。包括资源循环利用装备制造和废弃物利用等。

Task 6: Analyze the revenue sources and business models of green projects

Owners of green projects usually face low credit levels, making it difficult to obtain sufficient financing from traditional channels such as banks, and green projects have strong positive externalities, long payback cycles, high project risks, and low attention from commercialized investment institutions.

The assessment of green projects needs to consider the level of carbon emissions and the development process from the aspects of transformation of the industry in which the project is located, the source of income, the business model and the application of technology, identify the categories and priorities of green transformation projects in Chengdu, analyze the key points of their risks, and formulate recommendations on policies and mechanisms to promote the commercial sustainability of the projects.

1) The transition paths of different regions/industries/subjects vary, and the following factors need to be taken into account when analyzing green projects:

The distribution of industries in Chengdu and their contribution to the city's low-carbon transition, broader industry energy efficiency benchmarking and benchmarking, and a certain degree of foresight and guidance for Chengdu's work during the Fifteenth and Sixteenth Five-Year Plan periods.

2) Private sector green projects include but are not limited to the following categories:

-Renewable energy and ancillary. Including photovoltaic, wind power, charging and switching and energy storage;

-Energy saving and carbon reduction retrofits. Including industrial energy-saving retrofits, electrification of transportation carriers, etc;

-Pollution control. Including water, air and soil pollution control and comprehensive environmental remediation;

- -Resource recycling. Including resource recycling equipment manufacturing and waste utilization, etc.

2.3. 任务7：梳理典型和创新性的绿色金融产品和路径

1）

根据国内外标准与趋势，梳理绿色金融、生物多样性金融资产分类目录，转型金融标准，建议符合成都地方产业低碳发展、城市生态与生物多样性的项目分类目录，为建立项目库等基础设施（包含项目分类目录、准入条件、资金使用用途、影响力指标等）奠定基础。

2）梳理绿色金融产品，分析绿色金融产品发行主体，为正确处理金融业与可持续发展的关系，在发行绿色金融产品时的核心诉求、基本流程、风险控制要点，有效连接成都市绿色低碳转型领域的资金方和资产方。

3）

展望绿色金融未来发展趋势，立足区域与行业，在转型金融政策建议等方面开展研究，支撑成都市低碳转型，为形成不同绿色项目的融资模式提供适用性参考。

4）

分析绿色项目投融资模式。对包括但不限于成都现有绿色项目运作方式所对应的融资模式进行归类，重点调研、分析和总结可操作性、有效性和创新性，形成绿色投融资项目案例集。

5） 绿色金融产品包括但不限于以下类别：

-

绿色信贷。绿色信贷的发行主体主要包括政策性银行、商业银行和村镇银行等。银行依据区域的环境经济政策和产业政策，对从事可再生能源、低碳工业、低碳交通、污染治理、减缓和适应气候变化、遏制自然资源枯竭、生物多样性保护的企业或机构提供贷款扶持并实施优惠性的低利率，引导资金和贷款流入促进绿色低碳事业的企业和机构，并从污染环境、碳密集型的企业和项

目中适当抽离，促进社会与经济朝着更加健康以及更符合人与自然和谐共生的发展。

- 绿色债券。绿色债券募集资金专门用于支持符合规定条件的绿色产业、绿色项目或绿色经济活动，依照法定程序发行并按约定还本付息的有价证券。绿色债群券种主要有地方政府债、商业银行债、一般中期票据、交易商协会ABN、一般公司债、政策银行债、证监会主管ABS、超短期融资债券、一般企业债。

- 绿色基金。绿色基金发行主体一般包括政府引导和社会资本两种类型，前者更偏重于公益属性的长期投资，以政府资金撬动社会资本投资于特定环境治理和绿色发展等领域。而后者则以商业目的为主，若投资主体为财务投资者背景，则更注重项目推出带来的投资回报，若为产业类投资主体，则在财务回报之外，往往带有产业协同方面的追求。

- 绿色租赁。绿色租赁的发行主体主要是金融租赁企业和商业租赁企业。绿色项目普遍存在前期资金短缺、融资需求大、对设备技术要求高、投资回报周期长等特点，其具有“融资+融物”的双重属性和稳定可预期的现金流。融资租赁行业本身具备融资融物的双重属性，有助于纾解项目启动期的设备和资金困难，保证标的项目顺利运行。同时租赁物期限普遍较长，能够较好匹配绿色项目的长期性，一定程度上解决期限错配问题，降低流动性风险。

- 绿色资产证券化。属于绿色产业领域的、（或有）原始权益人发起的基础资产的未来现金流来源于绿色发展项目、或是募集资金投向绿色发展领域的一种结构化融资工具，是绿色金融与资产证券化的有机结合。绿色资产证券化不以公司作为承担还款责任的债务主体，而是剥离出一部分基础资产，形成资产池，作为将来的还款来源，并且可以设置分级发行等措施。

绿色保险。结合前述绿色金融投融资业务的重点，探索保险的支持作用，“保险+信贷”结合的模式等。保险产品可包含环境、社会、治理（ESG）风险

保险业务（如：包括碳保险等气候变化风险领域、环境污染责任保险等环境风险领域、安全生产责任保险等社会治理风险领域的保险业务），以及绿色产业保险业务（如生态保护和生态修复等生态环境产业，清洁能源产业，绿色建筑、绿色交通等基础设施绿色升级产业等领域的保险业务）。

Task 7: Sort out typical and innovative green financial products and paths

1) According to the standards and trends at home and abroad, sort out the classification catalogs of green finance and biodiversity financial assets, transform financial standards, and suggest the classification catalogs of projects in line with Chengdu's local industrial low-carbon development, urban ecology and biodiversity, so as to lay the foundation for the establishment of the infrastructure such as the project library (including the classification catalogs of projects, access conditions, the use of funds for the purpose of use, and the impact indexes, etc.).

2) Sorting out green financial products, analyzing the main issuers of green financial products, in order to correctly deal with the relationship between the financial industry and sustainable development, the core demands, basic processes, and risk control points in the issuance of green financial products, and effectively connecting the funders and asset owners in the field of green and low-carbon transformation in Chengdu City.

3) Prospect the future development trend of green finance, based on the region and the industry, carry out research in the area of transition financial policy recommendations, support the low-carbon transformation of Chengdu City, and provide applicable references for the formation of financing models for different green projects.

4) Analyze green project investment and financing models. Categorize the financing models corresponding to existing green projects in Chengdu, focusing on research, analysis and summarization of operability, effectiveness and innovativeness, and form a casebook of green investment and financing projects.

5) Green financial products include but are not limited to the following categories:

- Green credit. The main issuers of green credit mainly include policy banks, commercial banks and village banks. Banks provide loan support and implement preferential low interest rates for enterprises or institutions engaged in renewable

energy, low-carbon industry, low-carbon transportation, pollution control, climate change mitigation and adaptation, curbing natural resource depletion, and biodiversity conservation based on regional environmental and economic policies and industrial policies, guiding the flow of funds and loans to enterprises and institutions that promote the cause of green and low-carbon and appropriately pulling them away from environment-polluting and carbon-intensive enterprises and projects, and promoting the development of green credit. and projects that pollute the environment and are carbon-intensive, so as to promote the development of society and the economy in a healthier direction and in a way that is more in line with the harmonious coexistence of human beings and nature.

- Green Bonds. Green bonds are marketable securities issued in accordance with legal procedures and agreed upon for repayment of principal and interest, with funds raised exclusively for supporting green industries, green projects or green economic activities that meet the prescribed conditions. The main types of green bonds are local government bonds, commercial bank bonds, general medium-term notes, dealer association ABN, general corporate bonds, policy bank bonds, SEC supervisor ABS, ultra-short-term financing bonds, and general corporate bonds.

- Green funds. Green fund issuers generally include two types of government-led and social capital, with the former favoring long-term investment in public welfare attributes and using government funds to leverage social capital to invest in specific environmental governance and green development areas. The latter is mainly for commercial purposes, if the investment body for the financial investors background, is more focused on the project launch of the investment return, if the industrial investment body, in addition to the financial return, often with the pursuit of industrial synergies.

- Green leasing. Green leasing issuers are mainly financial leasing enterprises and commercial leasing enterprises. Green projects are generally characterized by a shortage of funds in the early stage, a large demand for financing, high technical requirements for equipment, and a long return on investment, etc., which has the dual attributes of "financing + financing" and a stable and predictable cash flow. The financial leasing industry itself has the dual attributes of financing and financing, which helps to alleviate the equipment and capital difficulties during the start-up period of the project and ensure the smooth operation of the underlying project. At the

same time, the leased property generally has a longer term, which can better match the long-term nature of green projects, solve the term mismatch problem to a certain extent, and reduce liquidity risk.

- Green asset securitization. Green asset securitization is a structured financing tool that belongs to the field of green industry, and the future cash flow of the underlying assets initiated by the (contingent) original equity holders comes from the green development projects or the funds raised are invested in the field of green development, which is an organic combination of green finance and asset securitization. Green asset securitization does not take the company as the debtor subject bearing the repayment responsibility, but rather strips out a part of the underlying assets to form an asset pool as a source of future repayment, and it can be set up with measures such as graded issuance.

- Green insurance. In light of the aforementioned focus on green financial investment and financing business, explore the supportive role of insurance and the model of combining "insurance + credit". Insurance products can include environmental, social and governance (ESG) risk insurance business (e.g., insurance business in climate change risk areas such as carbon insurance, environmental risk areas such as environmental pollution liability insurance, social governance risk areas such as safety production liability insurance), as well as green industry insurance business (e.g., insurance business in ecological environment industries such as eco-protection and eco-restoration, clean energy industries, green buildings, green transportation, etc.). infrastructure green upgrading industry, etc.).

2.4. 任务8：绿色项目创新性投融资模式试点

1) 对绿色项目与关联产业分类打包。因地制宜将生态效益高但经济效益差的项目与生态效益差收益高的项目进行分类捆绑，梳理项目实施主体、实施目标、区域特征和相关政策等。关联产业包括但不限生态建设、土地整治、生态农业、文化旅游、康养、乡村振兴、“光伏+”和生物质能利用等绿色项目，同时考虑成都未来产业的开发或经营权。

2) 分析项目一体化实施的可行性。对生态恢复、低碳改造与关联产业开发项目一体化实施的可行性进行分析。从实施主体、技术路线、投资估算

、实施期限等方面，综合分析其可行性，整体测算项目的成本和收益，合理优化调整项目边界范围，实现项目整体的收益/支出平衡。

3) 项目一体化实施关键机制与重难点分析。建立“产品设计-市场运作”的长效运营机制。项目实施主体协调各方，合理安排后期收益对前期投入进行反哺，减轻项目对政府财政支出的依赖，提高社会资本参与建设积极性。做好产品设计优化，合规分离生态资源所有权和经营权，进行集约化整合利用，再按照市场化原则，将其注入到运营方等市场主体，转化为具有稳定现金流的活的资产，建立生态产品“资源-资产-资金”融资渠道。

4) 结合试点，完善形成《成都市绿色金融模式指导建议》，吸引撬动更多社会资本参与成都公园城市生态环境建设、功能区绿色低碳改造、城市更新改造等，为其他城市和地区推进相关工作起到引领示范作用。

5) 试点研究需满足如下要求：

- 明确的试点边界范围、优先序。基于识别成都市生物多样性和气候变化的影响的宗旨，从以下维度出发明确试点项目边界范围和次序：实质性、可靠性、可用性。
- 清晰的试点项目实施技术路线。清晰的可承接项目实施主体画像，可预见的生态环境效益，健全的绩效评价及考核机制。

完善成本与收益平衡机制与融资建议。分析梳理投融资规划、交易结构、运作模式的落地过程中投融资、资源开发、收益来源、资产处置、招投标等重要事项。**Task 8: Pilot innovative investment and financing models for green projects**

1) Classify and bundle green projects with related industries. Classify and bundle projects with high ecological benefits but poor economic benefits with projects with poor ecological benefits and high returns according to local conditions, and sort out the project implementation main body, implementation objectives, regional characteristics and related policies. Associated industries include but are not limited to ecological construction, land remediation, eco-agriculture, cultural tourism, recreation, rural revitalization, "photovoltaic +" and biomass energy use and other green projects, while considering the development or operation rights of future industries in Chengdu.

2) Analyze the feasibility of integrated project implementation. Analyze the feasibility

of the integrated implementation of ecological restoration, low-carbon transformation and related industrial development projects. The feasibility of the project will be analyzed in terms of the implementation body, technical route, investment estimation, implementation period, etc. The overall cost and benefit of the project will be measured, and the scope of the project boundary will be reasonably optimized and adjusted, so as to achieve a balance between the overall benefit/expenditure of the project.

3) Analyze the key mechanisms and difficulties in the integrated implementation of the project. Establish a long-term operation mechanism of "product design and market operation". The main body of project implementation coordinates all parties, reasonably arranges the later income to feed back to the earlier investment, reduces the project's dependence on the government's financial expenditures, and improves the motivation of social capital to participate in the construction. Do a good job of product design optimization, compliance separation of ecological resources ownership and operation rights, intensive integration and utilization, and then in accordance with market principles, injected into the operator and other market players, transformed into a stable cash flow of living assets, the establishment of ecological products, "resources - assets - funds" financing channels.

4) Combined with the pilot study, improve and form the "Guidance Suggestions for Green Finance Model in Chengdu" to attract and mobilize more social capital to participate in the ecological environment construction of Chengdu Park City, green and low-carbon transformation of functional areas, urban renewal and transformation, etc., so as to play a leading role for the promotion of related work in other cities and regions.

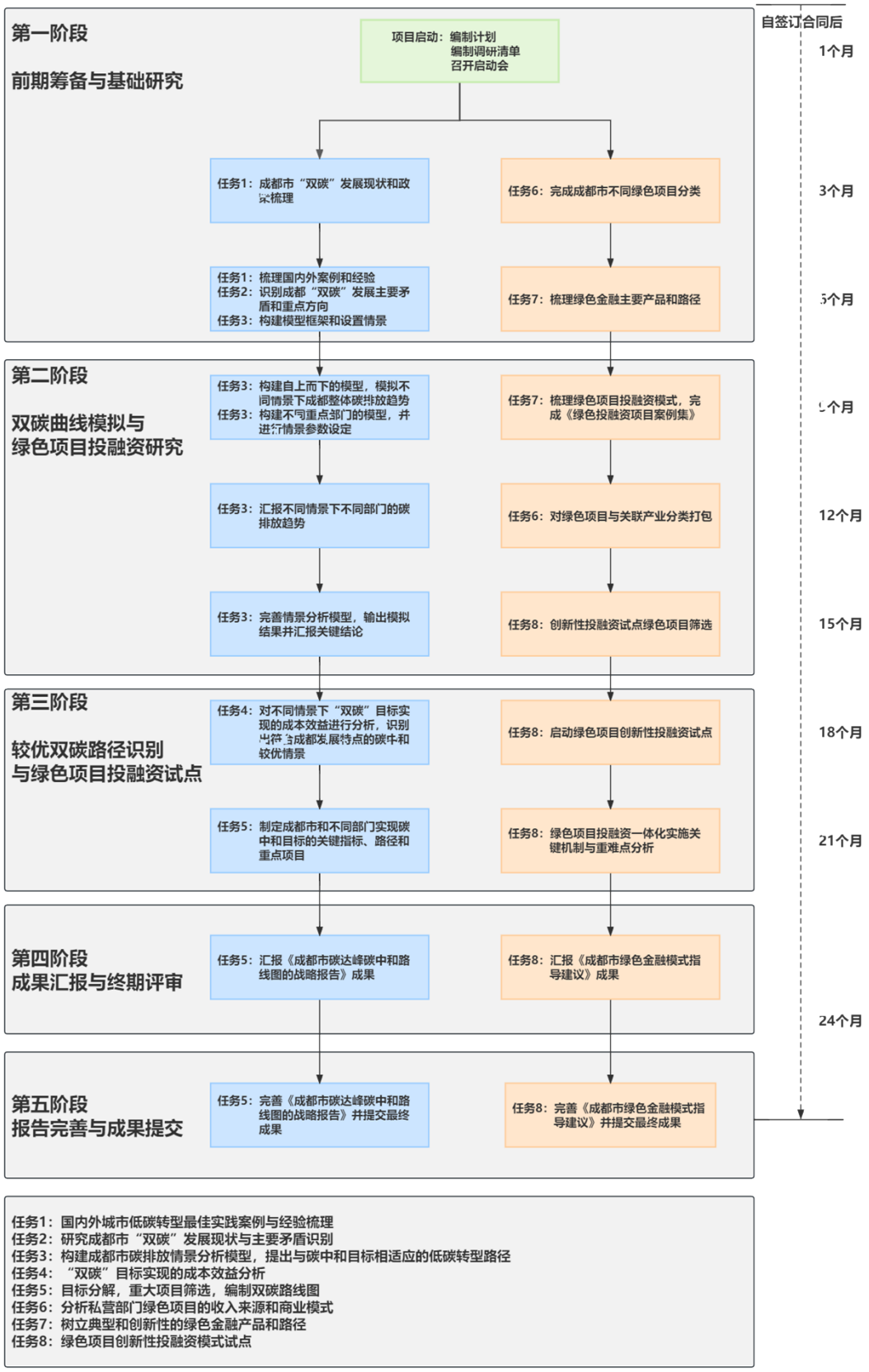
5) The pilot study needs to meet the following requirements:

-Clear scope of pilot boundary, priority order. Based on the purpose of identifying the impacts of biodiversity and climate change in Chengdu, the scope and order of pilot project boundaries are clarified from the following dimensions: substantiality, reliability, and usability.

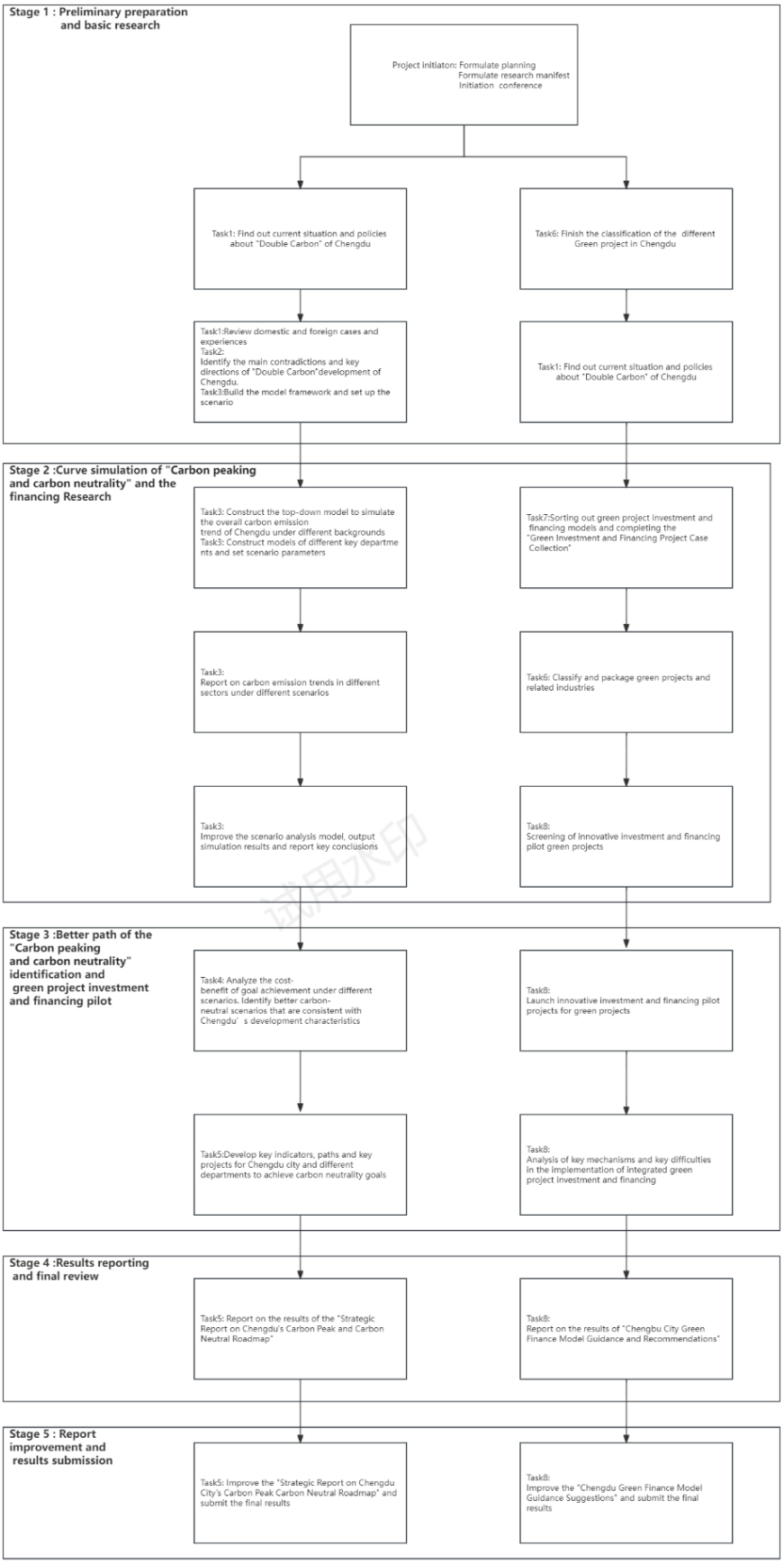
-Clear technical route for pilot project implementation. A clear portrait of the subjects who can undertake the project implementation, predictable ecological and

environmental benefits, and a sound performance evaluation and assessment mechanism.

1) Improve the cost and benefit balance mechanism and financing proposal. Analyze and sort out important matters such as investment and financing, resource development, revenue sources, asset disposal, bidding and other important matters in the landing process of investment and financing planning, transaction structure and operation mode.



各阶段子项任务逻辑关系与时间流程图



Task 1 : Review the best practices and experiences in low-carbon transformation of cities at home and abroad.
Task 2 : Study the development status and identification of main contradictions of Chengdu's "Carbon peaking and carbon neutrality".
Task 3 : Construct a carbon emission scenario analysis model for Chengdu and propose a low-carbon transformation path that is compatible with the carbon neutrality goal.
Task 4 : Cost-benefit analysis of achieving "Carbon peaking and carbon neutrality" goals.
Task 5 : Goal decomposition, major project screening, and preparation of "Carbon peaking and carbon neutrality" roadmap.
Task 6 : Analyze revenue sources and business models for private sector green projects.
Task 7 : Establish typical and innovative green financial products and paths.
Task 8 : Pilot project of innovative investment and financing models for green projects

The logical relationship and time flow chart of each stage subtask

2.5. 关键的成果与计划Key Deliverables and Plans

对于每项可交付的成果，顾问将提供一份独立的介绍，总结每个阶段的产出。以下是每项任务下预期的项目产出清单（最低要求）。For each deliverable, the consultant will provide a stand-alone presentation summarizing the outputs at each stage. The following is a list of expected project outputs (minimum requirements) under each task.

表三：关键成果Table 3: Key results

任务编号	*关键成果*	*时间线*
(1)	- 编制工作计划 - 编制调研清单 - 召开启动会	[1] 签订合同后1个月
(2)	- 完成第一轮数据收集 - 成都市“双碳”发展现状和政策梳理 - 完成成都市不同绿色项目分类	[3] 签订合同后3个月
(3)	- 梳理国内外案例和经验 - 启动第二轮调研和访谈 - 识别成都“双碳”发展主要矛盾和重点方向。 - 说明模型框架和设置情景 - 梳理绿色金融主要产品和路径	[6]签订合同后[6]个月
(4)	- 构建自上而下的模型，模拟不同情景下成都整体碳排放趋势。 - 构建不同重点部门的模型，并进行情景参数设定 - 梳理绿色项目投融资模式，完成《绿色投融资项目案例集》	[9]签订合同后[9]个月
(5)	- 汇报不同情景下不同部门的碳排放趋势 - 对绿色项目与关联产业分类打包	[12]签订合同后12个月

(6)	– 完善情景分析模型，输出模拟结果并汇报关键结论 – 汇报拟进行创新性投融资试点的绿色项目 – 中期汇报	[15]签订合同后15个月
(7)	– 对不同情景下“双碳”目标实现的成本效益进行分析，识别出符合成都发展特点的碳中和较优情景。 – 汇报《成都市绿色金融模式指导建议框架》 – 启动绿色项目创新性投融资试点	[18]签订合同后18个月
(8)	– 制定成都市和不同部门实现碳中和目标的关键指标、路径和重点项目。 – 绿色项目投融资一体化实施关键机制与重难点分析。	[21]签订合同后21个月
(9)	– – 终期评审 汇报《成都市碳达峰碳中和路线图的战略报告》、《成都市绿色金融模式指导建议》两项成果	[24]签订合同后24个月
(10)	– 完善并提交最终成果 《成都市碳达峰碳中和路线图的战略报告》 《成都市绿色金融模式指导建议》	[24]签订合同后24个月
Task number	Key results	Timeline
(1)	– Preparation of work plan – Prepare research checklist – Convene kick-off meeting	[1] 1 month after contract signing
(2)	– Completion of the first round of data collection – Sort out the current situation and	[3] 3 month after contract signing

	policies of "dual carbon" development in Chengdu. - Completion of categorization of different green projects in Chengdu	
(3)	- Sorting out domestic and international cases and experiences - Initiate second round of research and interviews - Identify the main contradictions and key directions of Chengdu's "dual-carbon" development. - Explain the modeling framework and set up scenarios - Sort out the main products and paths of green finance	[6] 6 month after contract signing
(4)	- Construct top-down model to simulate the overall carbon emission trend of Chengdu under different scenarios. - Construct models for different key sectors with scenario parameterization - Organize green project investment and financing models and complete the Green Investment and Financing Project Casebook	[9] 9 month after contract signing
(5)	- Report carbon emission trends of different sectors under different scenarios - Categorize and package green projects with related industries	[12] 12 month after contract signing
(6)	- Refine scenario analysis model, output simulation results and report key findings - Report on green projects to be piloted for innovative investment financing	[15] 15 month after contract signing

	- Mid-term reporting	
(7)	- Analyze the cost-benefit of achieving the "dual carbon" goal under different scenarios, and identify the preferred carbon neutral scenarios that meet Chengdu's development characteristics. - Report on the Recommended Framework of Guidance on Green Finance Model for Chengdu City. - Launch a pilot project on innovative investment and financing for green projects	[18] 18 month after contract signing
(8)	- Develop key indicators, pathways and priority projects for Chengdu City and different sectors to achieve carbon neutrality. - Analysis of key mechanisms and difficulties in the implementation of integrated green project investment and financing.	[21] 21 month after contract signing
(9)	- - Final Review Report on the two outcomes of the "Strategic Report on the Roadmap for Peak Carbon Achievement and Carbon Neutrality in Chengdu" and the "Guidance Suggestions on Green Finance Model in Chengdu"	[24] 24 month after contract signing
(10)	- Refinement and submission of final results Strategic Report on Chengdu Peak Carbon Neutral Roadmap Guidance Suggestions on Green Finance Model for Chengdu	[24] 24 month after contract signing

3. 服务期Service period

本项目所需的咨询服务期限为24个月，从2024年4月到2026年4月。

The period of consulting services required for this project is 24 months, from 2024 April to 2026 April.

4. 项目管理办公室提供的支持Support provided by the Project Management Office

1) 与成都市各部门协调，提供所需数据（如有费用，顾问公司应承担数据费用）。

2) 为项目的公众咨询提供必要的协助（如有任何费用，顾问公司应承担公众咨询的费用）。

3) 为整个项目提供必要的协助，如组织会议并通知与会者，提供会议室和用品，协调视频会议等（如有任何费用，顾问公司应承担上述活动的费用）。

1) Coordinate with various departments in Chengdu to provide the required data (if any fee, the consultant shall bear the data fee).

2) Provide necessary assistance for the public consultation of the project (if there is any cost, the consultant shall bear the cost of the public consultation).

3) Provide the necessary assistance for the whole project, such as organizing meetings and notifying participants, providing meeting rooms and supplies, coordinating video conferences, etc. (If there is any cost, the Consultant shall bear the cost of the above activities).

5. 所需的专业知识Required expertise

该项目需要低碳规划、能源、交通、环境、财务分析和投融资等方面的专家x人月。见顾问和专业职位月计划(表4)。咨询公司应提交其拟议的组织结构图、所有预期工作人员的姓名和资格，包括在项目实施期间为项目工作的预计专家。The project requires 31.5 man-months of experts in low-carbon planning, energy, transportation, environment, financial analysis and investment and financing. See the monthly plan for consultants and professional positions (table 4). The

consulting firm shall submit its proposed organizational chart, the names and qualifications of all expected staff, including expected experts to work on the project during its implementation.

表4：顾问表Consultant table

顾问职位和专业	人月	其中现场投入
1. 碳中和专家（项目组长）	5	2.5
2. 绿色金融专家（项目副组长）	8	4
3. 碳中和专家（国际专家）	2	1
4. 低碳交通专家（交通专业）	6	3
5. 绿色金融专家(投融资模式方向）	8	4
6. 能源专家（能源等相关专业）	6	3
7. 碳排放模型分析专家（环境、经济、能源等专业）	8	4
8. 绿色经济或循环经济专家（经济、环境等专业）	8	4
9. 项目助理	12	6
专家的总月数	63	31.5
Consulting positions and specialties	person-months	In-place input
10. Carbon Neutral Expert (Project leader)	5	2.5
11. Green Finance Expert (Deputy Project Leader)	8	4

12. Carbon Neutral Experts (international experts)	2	1
13. Low-carbon Transportation Expert (Transportation professional)	6	3
14. Green Finance expert (Investment and financing mode direction)	8	4
15. Energy Expert (energy and other related majors)	6	3
16. Expert in carbon emission model analysis (environment, economy, energy, etc.)	8	4
17. Green Economy or circular economy expert (economics, environment, etc.)	8	4
18. Project Assistant	12	6
Total number of months for experts	63	31.5

(1)咨询机构的资质

咨询机构应在绿色低碳、绿色金融、项目投融资等方面拥有10年以上和广泛的专业知识和经验；咨询机构需要具备有在中国的项目经验，具有在四川实施类似项目的优先。具备相关的海外项目经验。需要有较强的项目协调和管理能力，包括高质量的数据评估和报告制作。

(1) Qualification of the consulting institution

Consulting institutions should have more than 10 years and extensive professional knowledge and experience in green low-carbon, green finance, project investment and financing; Consultants are required to have project experience in China and have priority in implementing similar projects in Sichuan. Have relevant overseas project experience. Strong project coordination and management skills are required, including high quality data evaluation and report production.

(2)对顾问的资格要求

1) 碳中和专家（项目组长）

该专家应至少具有环境及相关专业研究生及以上学历、具有博士学位者优先。应享受正高级职称待遇。专家应具有10年以上气候变化减缓、城市可持续发展和低碳规划方面的经验，包括但不限于区域碳中和战略规划、城乡碳达峰碳中和路径、城市可持续发展评价等。主持或作为主要成员参与过不少于5个相关省部级及以上项目或国际项目。在绿色和低碳转型领域具有重要的国际学术或实践影响力。具有国际合作项目经验者。具有优秀的中英文书写与表达能力。

主要的工作及职责：项目组长负责本咨询服务的所有管理和协调工作，是专家组的代表。他/她将负责组织、协调、指导和监督专家组所有成员的工作，完成咨询任务。专家组将定期检查和指导研究进展，并与业主进行有效沟通。总体主持子项目的研究工作，主要负责制定本项目总体研究技术路线设计，组织产出兼顾国际前瞻性和本地可落地性的项目研究成果。支持其余工作的顺利开展。开展高质量绿色发展与低碳经济的相关培训。

2) 绿色金融专家（项目副组长）

该专家应至少具有经济学、管理学及相关专业研究生及以上学历，具有博士学位者优先。应享受正高级职称待遇。该专家应具有10年以上的绿色金融、碳交易及碳资产管理等相关经验。主持或作为主要成员参与过不少于5个相关省部级及以上项目或国际项目。熟悉国内外绿色项目投融资模式。具有国际合作项目经验者优先。具有优秀的中英文书写与表达能力。

主要的工作及职责：该专家主要负责项目绿色投融资模式与试点研究，产出和把控《成都市绿色金融模式指导建议》成果质量，该产出应与碳中和路线图相适应。项目副组长负责绿色金融相关的所有管理、调研和协调工作，涉及任务6-8的工作：

任务6：分析私营部门绿色项目的收入来源和商业模式

任务7：梳理典型和创新性的绿色金融产品和路径

任务8：绿色项目创新性投融资模式试点

3) 碳中和专家（国际专家）

该专家应至少环境及相关专业研究生及以上学历、具有博士学位者优先。该专家应至少具有8年以上的气候变化减缓、城市可持续发展、节能减排实施项

目和低碳规划方面的经验。主持或作为主要成员参与过不少于3个相关的国际项目。拥有世行和亚行项目的工作经验优先。在西方主要国家具有工作经历。熟悉国际最佳实践、国际碳中和技术和政策趋势。

主要的工作及职责：主要提供国际经验，使成都项目具有国际视野和前瞻性，与国内专家一起合作，确保研究成果的先进性，国际性。国际专家的工作涉及“任务2：国内外城市低碳转型最佳实践案例与经验梳理”中国际案例的筛选与梳理，包括：可借鉴的低碳发展政策和技术发展趋势、绿色金融促进低碳转型的实践等。此外，参与项目各阶段的讨论与沟通，对各阶段研究成果提供指导意见。

4) 低碳交通专家（可持续交通分析）

该专家应至少具有交通及相关专业研究生及以上学历、具有博士学位者优先。应享受副高级或以上职称待遇。该专家应具有8年以上可持续交通和空间布局优化方面的经验。主持或作为主要成员参与过不少于3个省级及以上交通减排类相关项目。熟悉低碳交通模型测算、电动车、氢燃料车推广以及投资额测算等知识和技能。具有国际合作项目经验者优先；具有优秀的中英文书写与表达能力。

主要的工作及职责：该专家负责成都交通领域碳减排路线图制定。与碳排放模型分析专家一起进行模型分析，制定出适合成都的低碳交通路线图。该路线图需要与成都市整体双碳工作相适应，是成都双碳系统性解决方案中的一部分。研究成果为后续项目绿色金融模式研究提供基础。涉及五方面的任务。

任务1：国内外城市低碳转型最佳实践案例与经验梳理：提供国内外可持续交通案例借鉴。

任务2：研究成都市“双碳”发展现状与主要矛盾识别：通过交通碳排放现状分析、既有交通政策措施回顾性评价以及对标分析，识别推进可持续交通的关键痛点以及重点改进方向。

任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径：设定与成都相符合的情景，模拟成都市交通碳排放趋势，识别符合双碳目标的路径。

任务4：“双碳”目标实现的成本效益分析：对交通碳中和路径进行成本效

益分析，确定较优路径。

任务5：目标分解，重大项目筛选，编制双碳路线图：提出低碳交通分阶段主要目标和关键指标，筛选出交通领域重点项目，编制交通碳中和路线图。

5) 绿色金融专家（投融资模式方向）

该专家应至少具有经济学、金融学、工程经济管理等相关专业研究生及以上学历、具有博士学位者优先。有绿色金融政策制定经验者优先。应享受副高级或以上职称待遇。该专家应具有8年以上绿色金融或碳交易或碳资产管理等相关经验。主持或参与不少于3个绿色金融类项目。熟悉国内外绿色项目投融资模式。具有国际合作项目经验者优先。具有优秀的中英文书写与表达能力。

主要的工作及职责：该专家与副组长合作，共同完成《成都市绿色金融模式指导建议》。协助副组长进行绿色金融相关调研工作，涉及任务6-任务8的工作：

任务6：分析私营部门绿色项目的收入来源和商业模式

任务7：梳理典型和创新性的绿色金融产品和路径

任务8：绿色项目创新性投融资模式试点

6) 能源专家

该专家应至少具有能源及相关专业研究生及以上学历、具有博士学位者优先。应享受副高级或以上职称待遇。该专家应具有8年以上新能源项目建设、能源结构调整、电力脱碳研究方面的经验。主持或作为主要成员参与过与不少于3个能源减排类相关项目。熟悉新能源项目的设计与建设运营，如：水电、光伏、储能等。具有国际合作项目经验者优先。具有优秀的中英文书写与表达能力。

主要的工作及职责：该专家负责成都能源转型相关路线图制定，能源不仅包括电力供应、也包括建筑、交通、工业等领域涉及的能源转型。该路线图需与成都整体碳中和路线图相适应。情景参数将纳入整体模型中进行分析，协助碳排放模型分析专家进行碳排放模拟。研究成果为后续项目绿色金融模式研究提供基础。具体涉及任务1-5中与能源相关的内容：

任务1：国内外城市低碳转型最佳实践案例与经验梳理：提供国内外与成都特点相符的能源转型案例。

任务2：研究成都市“双碳”发展现状与主要矛盾识别：通过能源现状分析、既有能源转型政策措施回顾性评价以及对标分析，识别成都市能源转型的关

键问题和优化方向。

任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径：设定与成都相符合的能源转型情景，重点模拟成都市电力碳排放趋势，识别符合双碳目标的能源转型路径。与碳排放模型分析专家、交通专家等协作，为建筑、工业、交通等碳排放领域的能源转型提供参考意见。

任务4：“双碳”目标实现的成本效益分析：对能源转型相关投资进行测算，进行成本效益分析，确定较优路径。

任务5：目标分解，重大项目筛选，编制双碳路线图：提出能源转型分阶段主要目标和关键指标，筛选出能源转型重点项目，编制能源转型碳中和路线图。

7) 碳排放模型分析专家（碳排放趋势分析、成本效益分析）

该专家应至少具有能源、环境等相关专业研究生及以上学历、具有博士学位者优先。应享受副高级或以上职称待遇。该专家应具有8年以上能源系统分析与建模、成本与投资分析、温室气体减排和数据分析经验。主持或参与不少于3个省市级低碳与可持续发展项目，包括国家、城市或区域的减碳路径、投资需求评估等相关研究。具有国际合作项目经验者优先。具有优秀的中英文书写与表达能力。

主要的工作及职责：负责制定碳排放模型框架，整合多部门模型和测算结果，对成都市整体碳排放趋势进行分析，通过成本效益分析，识别较优路径，参与成都碳中和路线图总报告编制。涉及任务2-5.

任务2：研究成都市“双碳”发展现状与主要矛盾识别：汇总各方研究成果。

任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径：负责构建自上而下模型，并整合各部门自下而上模型，进行总体分析。

任务4：“双碳”目标实现的成本效益分析：进行总体分析。

任务5：目标分解，重大项目筛选，编制双碳路线图：提出总体目标和关键指标，参与成都碳中和路线图总报告编制。

8) 绿色经济或循环经济专家

该专家应至少具有环境经济学、经济学、环境等相关专业研究生及以上学历、具有博士学位者优先。应享受副高级或以上职称待遇。该专家应具有8年以上循环经济、高耗能行业减碳研究方面的经验。主持或作为主要成员参与过与不少于3个省市级绿色经济、循环经济、产业绿色发展等相关项目。具有国际合作项目经验者优先。具有优秀的中英文书写与表达能力。

主要的工作及职责：

该专家从产业和循环经济的角度提出成都双碳工作着力点，提出相适应的政策机制。研究成果为后续项目绿色金融模式研究提供基础。涉及任务1-5。

任务1：国内外城市低碳转型最佳实践案例与经验梳理：提供国内外与成都特点相符的绿色经济、循环经济发展的案例。

任务2：研究成都市“双碳”发展现状与主要矛盾识别：通过现状分析、既有政策措施回顾性评价以及对标分析，识别成都市绿色经济和循环经济发展的关键问题和优化方向。

任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径：提出成都市绿色经济与循环经济发展的情景设置和政策趋势，与碳排放模型分析专家协作，构建产业发展、废弃物资源化利用模型。

任务4：“双碳”目标实现的成本效益分析：对绿色经济和循环经济发展相关投资进行测算，进行成本效益分析，确定较优路径。

任务5：目标分解，重大项目筛选，编制双碳路线图：提出绿色经济、循环经济发展、减污降碳扩绿协同等方面分阶段主要目标和关键指标，筛选出相关重点项目，参与编制成都市碳中和路线图编制。

9） 项目助理

该专家应至少具有研究生或以上学历。该专家应具有至少1个类似世行项目的管理经验。具有优秀的中英文书写与表达能力。

主要的工作及职责：协助成都市政府和专家团队处理日常工作与项目参与各方的沟通和联络；各项报告的编写、编辑及提交与GEF的联络和文件的准备，安排项目检查团的实地考察工作项目有关文档的管理。

(2) Qualification requirements for consultants

1） Carbon Neutral Expert (Project leader)

The expert should have at least a master's degree or above in environmental and related fields, and a doctor's degree is preferred. Should enjoy the senior title

treatment. Experts should have more than 10 years of experience in climate change mitigation, urban sustainable development and low-carbon planning, including but not limited to regional carbon neutral strategic planning, urban and rural carbon peak carbon neutral path, urban sustainable development assessment, etc. Presided over or participated in no less than 5 relevant provincial and ministerial level or above projects or international projects as a key member. Have significant international academic or practical influence in the field of green and low-carbon transition. Experience in international cooperation projects. Excellent written and expressive skills in both Chinese and English.

Main Jobs and responsibilities: The Project Leader is responsible for all management and coordination of the Advisory Service and is the representative of the expert group. He/she will be responsible for organizing, coordinating, directing and supervising the work of all members of the Expert Group and for fulfilling the advisory mandate. The expert group will regularly review and guide the progress of the research and communicate effectively with the owner. In charge of the research work of the subproject as a whole, I am mainly responsible for the design of the overall research technical route of the project, and organize the production of project research results that take into account both international foresight and local practicability. Support the smooth implementation of the rest of the work. Carry out high-quality training on green development and low-carbon economy.

2) Green Finance Expert (Deputy Project leader)

The expert should have at least a master's degree or above in economics, management or related fields, and a doctor's degree is preferred. Should enjoy the senior title treatment. The expert should have more than 10 years of experience in green finance, carbon trading and carbon asset management. Presided over or participated in no less than 5 relevant provincial and ministerial level or above projects or international projects as a key member. Familiar with domestic and foreign green project investment and financing models. Experience in international cooperation projects is preferred. Excellent written and expressive skills in both Chinese and English.

Main duties and responsibilities: The expert is mainly responsible for the green investment and financing model and pilot research of the project, producing and controlling the quality of the "Chengdu Green Finance Model Guidance and Proposal", and the output should be in line with the carbon neutral roadmap. The Deputy Project Leader is responsible for all management, research and coordination work related to green finance, involving tasks 6-8:

Task 6: Analyze revenue streams and business models for green projects in the private sector

Task 7: Sorting out typical and innovative green financial products and pathways

Task 8: Pilot innovative investment and financing models for green projects

3) Carbon Neutral Experts (international experts)

The expert should have at least a master's degree or above in environmental and related fields, and a doctor's degree is preferred. The expert should have at least 8 years of experience in climate change mitigation, urban sustainable development, energy conservation and emission reduction implementation projects and low carbon planning. Chaired or participated as a key member in no less than 3 relevant international projects. Experience working on World Bank and ADB projects is preferred. Work experience in a major Western country. Be familiar with international best practices, international carbon neutral technology and policy trends.

Main duties and responsibilities: Mainly provide international experience, make the Chengdu project have an international vision and foresight, cooperate with domestic experts to ensure the advanced and international research results. The work of the international experts involved the screening and sorting of international cases in "Task 2: Combing best Practice cases and experiences of domestic and foreign urban low-carbon transition", including: the development trend of low-carbon development policies and technologies that can be used for reference, and the practice of green finance to promote low-carbon transition. In addition, participate in the discussion and communication at all stages of the project, and provide guidance on the research results at all stages.

4) Low Carbon Transport Expert (Sustainable Transport Analysis)

The expert should have at least a master's degree or above in transportation and related fields, and a doctor's degree is preferred. Should enjoy deputy senior title or above treatment. The expert should have more than 8 years of experience in sustainable transportation and spatial layout optimization. Presided over or participated in no less than 3 provincial and above transportation emission reduction projects as a key member. Familiar with low-carbon transportation model calculation, electric vehicle, hydrogen fuel vehicle promotion and investment calculation knowledge and skills. Experience in international cooperation projects is preferred; Excellent written and expressive skills in both Chinese and English.

Main job and responsibilities: The expert is responsible for the development of carbon emission reduction roadmap in Chengdu transportation sector. Conduct model

analysis with carbon emission model analysis experts to develop a low-carbon transportation roadmap suitable for Chengdu. The roadmap needs to be compatible with Chengdu's overall dual-carbon work and is part of Chengdu's dual-carbon systemic solution. The research results provide the basis for the follow-up project of green finance model research. Tasks involving five aspects.

Task 1: Domestic and foreign urban low-carbon transition best practice cases and experience review: Provide domestic and foreign sustainable transportation cases for reference.

Task 2: To study the status quo of "dual carbon" development in Chengdu and identify the main contradictions: to identify the key pain points and key improvement directions of sustainable transportation through the analysis of the status quo of traffic carbon emissions, the retrospective evaluation of existing traffic policies and measures, and the benchmarking analysis.

Task 3: Build a carbon emission scenario analysis model for Chengdu City, propose a low-carbon transformation path that is compatible with the carbon neutral goal: set a scenario that is consistent with Chengdu City, simulate the carbon emission trend of Chengdu city traffic, and identify the path that is consistent with the dual carbon goal.

Task 4: Cost-benefit analysis of the implementation of the "two-carbon" goal: Conduct a cost-benefit analysis of the transport carbon-neutral path to determine the optimal path.

Task 5: Target decomposition, major project screening, preparation of dual-carbon road map: Put forward the main objectives and key indicators of low-carbon transportation in phases, screen out key projects in the field of transportation, and prepare a roadmap for carbon neutrality in transportation.

5) Green finance expert (investment and financing mode direction)

The expert should have at least a master's degree or above in economics, finance, engineering economics and management, and a doctor's degree is preferred. Experience in green finance policy making is preferred. Should enjoy deputy senior title or above treatment. The expert should have at least 8 years of relevant experience in green finance or carbon trading or carbon asset management. Host or participate in no less than 3 green finance projects. Familiar with domestic and foreign green project investment and financing models. Experience in international cooperation projects is preferred. Excellent written and expressive skills in both Chinese and English.

Main duties and responsibilities: The expert cooperated with the deputy leader to jointly complete the "Chengdu Green Finance Model Guidance and Suggestions". Assist the deputy leader to carry out green finance related research, involving tasks 6-8:

Task 6: Analyze revenue streams and business models for green projects in the private sector

Task 7: Sorting out typical and innovative green financial products and pathways

Task 8: Pilot innovative investment and financing models for green project

Task 6: Analyse revenue sources and business models for private sector green projects

Task 7: Sorting out typical and innovative green financial products and pathways

Task 8: Pilot innovative investment and financing models for green projects

6) Energy specialists

The expert should have at least a postgraduate degree or above in energy and related disciplines, and a doctoral degree is preferred. He/she shall be entitled to the treatment of associate senior or above title. The expert shall have more than 8 years of experience in new energy project construction, energy structure adjustment and power decarbonisation research. He/she has presided over or participated as a key member in no less than 3 projects related to energy emission reduction. Familiar with the design and construction operation of new energy projects, such as: hydropower, photovoltaic, energy storage. Experience in international co-operation projects is preferred. Excellent writing and presentation skills in English and Chinese.

Main tasks and responsibilities: The expert is responsible for the development of a roadmap for Chengdu's energy transition, which includes not only electricity supply, but also the energy transition involved in buildings, transport, industry and other sectors. The roadmap needs to be compatible with Chengdu's overall carbon neutral roadmap. Scenario parameters will be incorporated into the overall model for analysis, assisting the carbon modelling experts in carbon emission simulation. The results of the research will provide the basis for green finance modelling studies for subsequent projects. Specifically related to energy-related content in Tasks 1-5:

Task 1: Compendium of best practice cases and experiences of low-carbon transition in cities at home and abroad: Provide cases of energy transition at home and abroad that match the characteristics of Chengdu.

Task 2: Research on the current situation of "dual-carbon" development in Chengdu and identification of major contradictions: Through analysis of the current

energy situation, retrospective evaluation of existing energy transition policies and measures, and benchmarking analysis, identify the key issues and optimisation directions of energy transition in Chengdu.

Task 3: Construct a carbon emission scenario analysis model for Chengdu, and propose low-carbon transition paths compatible with the carbon neutrality target: set up energy transition scenarios compatible with Chengdu, focusing on simulating the trend of electricity carbon emissions in Chengdu, and identifying energy transition paths compatible with the dual-carbon target. Collaborate with carbon emission modelling and analysis experts, transport experts, etc., to provide references for energy transition in carbon emitting areas such as buildings, industry and transport.

Task 4: Cost-benefit analysis for achieving the "dual carbon" goal: Measurement of energy transition-related investments, cost-benefit analysis and identification of preferred pathways.

Task 5: Decomposition of objectives, screening of major projects, and preparation of a dual-carbon roadmap: put forward the main objectives and key indicators of the energy transition in phases, screen out the key projects of the energy transition, and prepare a carbon-neutral roadmap for the energy transition.

7) Carbon emission modelling analysis specialists (carbon emission trend analysis, cost-benefit analysis)

The expert should have at least a postgraduate degree or above in energy, environment or other related disciplines, and a doctoral degree is preferred. He/she should be entitled to the title of associate senior or above. The expert shall have at least 8 years of experience in energy system analysis and modelling, cost and investment analysis, greenhouse gas emission reduction and data analysis. Hosting or participating in no less than 3 provincial and municipal low carbon and sustainable development projects, including national, urban or regional carbon reduction pathways, investment demand assessment and other related research. Experience in international co-operation projects is preferred. Excellent writing and presentation skills in English and Chinese.

Major tasks and responsibilities: Responsible for developing a carbon emission modelling framework, integrating multi-departmental models and measurements, analysing the overall carbon emission trends in Chengdu, identifying better pathways through cost-benefit analyses, and participating in the preparation of the overall report of Chengdu's Carbon Neutral Roadmap. Tasks 2-5.

Task 2: Research on the current situation of "dual-carbon" development in

Chengdu and identification of major contradictions: Summarise the results of the research by various parties.

Task 3: Construct a model for analysing carbon emission scenarios in Chengdu, and propose a low-carbon transition pathway that is compatible with the carbon neutrality target: responsible for constructing a top-down model and integrating bottom-up models from various sectors for overall analysis.

Task 4: Cost-benefit analysis of achieving the `double carbon' goal: conduct an overall analysis.

Task 5: Breakdown of objectives, screening of major projects, and preparation of a dual-carbon roadmap: Propose overall objectives and key indicators, and participate in the preparation of a general report on Chengdu's carbon-neutral roadmap.

8) Green economy or circular economy experts

The expert should have at least a postgraduate degree or above in environmental economics, economics, environment and other related disciplines, and a doctoral degree is preferred. He/she shall be entitled to the treatment of associate senior or above title. The expert shall have at least 8 years of experience in research on circular economy and carbon reduction in energy-consuming industries. He/she has presided over or participated as a key member in no less than 3 provincial and municipal level projects related to green economy, circular economy, and green development of industries. Experience in international co-operation projects is preferred. Excellent writing and presentation skills in English and Chinese.

Main tasks and responsibilities: The expert proposes focus points for Chengdu's dual-carbon work from the perspective of industry and circular economy, and proposes appropriate policy mechanisms. The research results will provide the basis for the research on green finance models for subsequent projects. Involves tasks 1-5.

Task 1: Sorting out best practice cases and experiences of low-carbon transition in cities at home and abroad: Provide cases of green economy and circular economy development at home and abroad that are in line with the characteristics of Chengdu.

Task 2: To study the current situation of "dual-carbon" development in Chengdu and identify the main contradictions: through the analysis of the current situation, the retrospective evaluation of existing policies and measures, and the benchmarking analysis, to identify the key issues and optimisation direction of the green economy and circular economy development in Chengdu.

Task 3: Construct a carbon emission scenario analysis model for Chengdu and propose a low-carbon transition path that is compatible with the carbon neutrality

target: propose scenario settings and policy trends for the development of green economy and circular economy in Chengdu, and collaborate with experts in the analysis of the carbon emission model to construct models for industrial development and resource utilisation of waste.

Task 4: Cost-benefit analysis for the achievement of the `dual carbon' goal: Measurement of investments related to the development of a green economy and a circular economy, cost-benefit analysis, and identification of preferred pathways.

Task 5: Decomposition of objectives, screening of major projects, and preparation of a dual-carbon roadmap: put forward the main objectives and key indicators of the green economy, the development of the recycling economy, and the reduction of pollution, carbon reduction, greening and synergies in phases, screen out the relevant key projects, and take part in the preparation of a carbon-neutral roadmap for Chengdu City.

9) Project Assistant

The expert should have at least a graduate degree or higher. The expert should have experience in managing at least 1 similar WB project. Excellent writing and presentation skills in English and Chinese.

Main duties and responsibilities: assist Chengdu Municipal Government and the expert team in daily work and communication and liaison with all parties involved in the project; preparation, editing and submission of reports, liaison with the GEF and preparation of documents, arranging field visits for project inspection teams, management of project related documents.

顾问职位和专业 Consultant positions and profession	专家类别 Specialist Category	专家编号 Specialist NO.
1. 碳中和专家（项目组长）	主关键 Master Critical	MC-1
2. 绿色金融专家（项目副组长）	主关键 Master Critical	MC-2
3. 碳中和专家（国际专家）	次关键 Sub Critical	SC-1
4. 低碳交通专家（交通专业）	次关键 Sub Critical	SC-2
5. 绿色金融专家(投融资模式方向)	次关键	SC-3

	Sub Critical	
6. 能源专家（能源等相关专业）	次关键 Sub Critical	SC-4
7. 碳排放模型分析专家（环境、经济、能源等专业）	次关键 Sub Critical	SC-5
8. 绿色经济或循环经济专家（经济、环境等专业）	次关键 Sub Critical	SC-6
9. 项目助理	非关键 Support Personnel	SP-1

主关键专家，次关键专家与非关键专家分类表

Classification table for specialist

Consultant positions and profession	Category of experts Specialist Category	Expert number Specialist NO.
1. Carbon Neutral Expert (Project Team Leader)	primary key Master Critical	MC-1
2. Green finance expert (deputy project leader)	primary key Master Critical	MC-2
3. Carbon neutral experts (international experts)	subcritical Sub Critical	SC-1
4. Low-carbon transport expert (transport speciality)	subcritical Sub Critical	SC-2
5. Green finance experts (in the direction of investment and financing models)	subcritical Sub Critical	SC-3
6. Energy experts (energy and other related disciplines)	subcritical Sub Critical	SC-4
7. Carbon modelling analysis specialists (environment, economics, energy, etc.)	subcritical Sub Critical	SC-5
8. Green or circular economy experts (specialising in	subcritical	SC-6

economics, environment, etc.)	Sub Critical	
9. Project Assistant	non-critical Support Personnel	SP-1

咨询顾问投入需求表（单位：人-月）

Consultant Input Table (Unit: person -month)

表 咨询顾问投入需求表（单位：人-月）											
		1.碳中和专家（项目组长）MC-1	**2.绿色金融专家（项目副组长）MC-2**	**3.碳中和专家（国际专家）SC-1**	**4.低碳交通专家（交通专业）SC-2**	**5.绿色金融专家(投融资模式方向）SC-3**	**6.能源专家（能源等相关专业）SC-4**	**7.碳排放分析专家（环境、经济、能源等专业）SC-5**	**8.绿色经济或循环经济专家（经济、环境等专业）SC-6**	**9.项目助理(成都在地联络人)SP-1**	总计
第一阶段：前期筹备与基础研究	项目启动：编制计划、调研清单、召开启动会	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	2.9
	任务1：国内外城市低碳转型最佳实践案例与经验梳理	0.5	0.5	1	0.4	0.5	0.4	0.2	0.5	1	5
	任务2：研究成都市“双碳”发展现状与主要矛盾识别	0.5	0.5	0.1	1	0.5	1	0.2	1	1.5	6.3
	任务3的基础部分：构建模型框架和设置情景	0.5		0.1	0.5		0.5	0.5	0.5	0.4	3
	任务6的基础部分：完成成都市不同		0.5			0.5				0.3	1.3

	绿色项目分类										
	任务7的基础部分：梳理绿色金融主要产品和路径		0.5			0.5				0.3	1.3
第二阶段：双碳曲线模拟与绿色项目投融资研究	任务3：构建成都市碳排放情景分析模型，提出与碳中和目标相适应的低碳转型路径	1		0.2	2		2	3.5	3	0.5	12.2
	任务6：分析私营部门绿色项目的收入来源和商业模式	0.1	1			1				0.5	2.6
	任务7：树立典型和创新性的绿色金融产品和路径	0.1	1			1				0.5	2.6
	任务8的基础部分：创新性投融资试点绿色项目筛选	0.1	0.4	0.1		0.3		0.1	0.2	0.5	1.7
第三阶段：双碳曲线模拟与绿色项目投融资研	任务4：“双碳”目标实现的成本效益分析	0.2	0.1		0.3		0.3	1	0.5	0.5	2.9
	任务5：目标分解，重大项目筛选，编制双碳路线图	0.2	0.1	0.1	0.2		0.2	1	0.5	0.5	2.8

究	任务8：绿色项目创新性投融资模式试点	0.1	2			2				1	5.1
第四阶段：成果汇报与终期评审	编写和汇报《成都市碳达峰碳中和路线图的战略报告》、	1		0.1	1		1	1	1	2	7.1
	编写和汇报《成都市绿色金融模式指导建议》	0.2	1			1			0.2	1	3.4
第五阶段：报告完善与成果提交	完善并提交《成都市碳达峰碳中和路线图的战略报告》	0.2			0.3		0.3	0.2	0.3	0.5	1.8
	完善并提交《成都市绿色金融模式指导建议》		0.1			0.4				0.5	1
合计		5	8	2	6	8	6	8	8	12	63

Table Table of input requirements for consultants (in person-months)

		1. Carbon Neutral Expert (Proje	2. Green Finance Specialist (Deputy Project	3. Carbon Neutral Expert (International Expert)	4. Low Carbon Transport Specialist (Transport) SC-2	5. Green Finance Specialist (Investment and Fina	6. Energy Specialist (Energy and other related disci	7. Carbon modelling analysis specialists (environment,	8. Experts on Green Economy or Circular Economy	9.Project Assistant (Local contact in	(grand) total

		ct Team Leader) MC-1	Leader) MC-2	SC-1		ncing Model Direction) SC-3	plines) SC-4	economics, energy, etc.) SC-5	(specialised in economics, environment, etc.) SC-6	Chengdu) SP-1	
Phase I: Pre-preparation and basic research	Project initiation: preparation of the plan, research of the inventory, convening of the kick-off meeting	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	2.9
	Task 1: Best Practice Cases and Experiences of Low Carbon Transition in	0.5	0.5	1	0.4	0.5	0.4	0.2	0.5	1	5

	Cities at Home and Abroad										
	Task 2: To study the current situation of "dual-carbon" development in Chengdu and identify the main contradictions.	0.5	0.5	0.1	1	0.5	1	0.2	1	1.5	6.3
	Foundational part of task 3: constructing the modelling framework and setting up the scenario	0.5		0.1	0.5		0.5	0.5	0.5	0.4	3
	Basic part of		0.5			0.5				0.3	1.3

	Task 6: Completing the classification of different green projects in Chengdu City										
	Foundational part of Task 7: Sorting out the main products and pathways of green finance		0.5			0.5				0.3	1.3
Phase II: Double Carbon Curve Modelling and	Task 3: Construct a carbon emission scenario analysis model for Chengdu and propose	1		0.2	2		2	3.5	3	0.5	12.2

Green Project Investment and Financing Study	a low-carbon transition pathway that is compatible with the carbon neutrality target.										
	Task 6: Analyse revenue sources and business models for private sector green projects	0.1	1			1				0.5	2.6
	Task 7: Establishing typical and innovative green financial products and pathway	0.1	1			1				0.5	2.6

	s										
	Foundation part of Task 8: Screening of green projects for innovative investment and financing pilots	0.1	0.4	0.1		0.3		0.1	0.2	0.5	1.7
Phase III: Double Carbon Curve Modelling and Green Project Investme	Task 4: Cost-benefit analyses for achieving the `dual carbon' goal	0.2	0.1		0.3		0.3	1	0.5	0.5	2.9
	Task 5: Breakdown of objectives, screening of major projects and	0.2	0.1	0.1	0.2		0.2	1	0.5	0.5	2.8

nt and Financing Study	preparation of a dual-carbon road map										
	Task 8: Pilot innovative investment and financing models for green projects	0.1	2			2				1	5.1
Phase IV: Reporting of results and final evaluation	Prepare and report on the Strategic Report on the Roadmap for Peak Carbon Achievement and Carbon Neutrality in Chengd	1		0.1	1		1	1	1	2	7.1

	u,										
	Preparing and reporting on the Recommendations for Guidance on Green Finance Models in Chengdu City	0.2	1			1			0.2	1	3.4
Phase V: Refinement of the report and submission of the results	Refinement and submission of the Strategic Report on Carbon Peak and Carbon Neutral Roadmap for Chengdu City	0.2			0.3		0.3	0.2	0.3	0.5	1.8

	Improving and submitting the Recommendations for Guidance on Green Finance Models in Chengdu City		0.1			0.4				0.5	1
add up the total		5	8	2	6	8	6	8	8	12	63